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Organizational sponsorship and service co-development: A contingency view on service co-development directiveness of business incubators

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ABSTRACT

We address the lack of studies focusing on internal organizational sponsorship mechanisms, while considering environmental influencers and focus on a specific type of organizational sponsorship to do so: Business incubators. We argue that to be able to offer a customized incubatee-strengthening service pack, incubator-incubatee interaction is key, requiring clear-cut and directive service co-development instructions, which is our focal construct. To better understand the functioning of this focal construct, we adopt a contingency approach to examine how the incubator's human capital, and the institutional environment impact the incubator's service co-development directiveness. A quantitative empirical study reveals that both human capital and an entrepreneurially-minded regulative and cognitive institutional environment allow an incubator to be directive, thereby laying a foundation for co-development of customized service offerings. Moreover, the incubator's human capital turns out to further stimulate the positive effects of an entrepreneurially-minded regulative environment. All in all, we find that both internal organizational and external institutional elements are pivotal for first-best implementation of the internal sponsorship mechanism 'service co-development directiveness'.

1. Introduction

Organizational sponsorship providers act as an intermediary between the environment and a start-up, trying to offer each sponsored company the necessary resources to survive in that environment (Amezcua et al., 2020; Dutt et al., 2016). A specific case in point is the incubator; a professional service provider (Aaboen, 2009) offering administrative services, logistic infrastructure, business coaching and networking to small start-ups, also called 'incubatees' (Bergek and Norrman, 2008). Unfortunately, even though offering business support is expected to have a positive impact on start-up failure and growth rates (Vanderstraeten et al., 2016), sponsorship organizations such as incubators often struggle to define which services their supported companies need. This originates from the very nature of incubators: They support nascent entrepreneurs often unaware of their own resource gaps and reluctant to engage in the sponsoring process (van Weele et al., 2017).

What is more, even though sponsorship organizations thus prepare the start-up to survive in a business environment (Amezcua et al., 2020; Hackett and Dilts, 2008), it is the same environment that impacts the sponsorship organization's internal functioning by surrounding it by a stimulating *or* impeding institutional context for entrepreneurial activities (Mian et al., 2016; Phan et al., 2005). For example, in institutional contexts with high dispersion of entrepreneurship-related knowledge, a sponsorship organization can assume that most entrepreneurs know the basics of how to start a business. As such, the sponsorship organization can focus on business proficiency in its service offering and does not need to set up incubation mechanisms to explain its basics. In other words, the sponsorship organization's institutional environment does not only impact the sponsored companies' ease of gaining external legitimacy (Amezcua et al., 2020), but also the sponsorship organization's internal functioning. In this paper, we follow this 'external environment–internal sponsorship organization' viewpoint, and plea for a contingency view to better understand both internal and external factors influencing a sponsorship organization's internal functioning. For this, we focus on one specific case of organizational sponsorship: The business incubator.

We build up our argument around this 'external environment-

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internal sponsorship organization' viewpoint in four steps. First, given that incubators try to offer each incubatee the resources necessary to survive in the business environment (Dutt et al., 2016), we define which internal incubation mechanism impacts the development of such an optimal service mix. We will argue that service co-development directiveness is key. Second, we delineate its internal organizational influencers, adding to recent studies by further opening the incubator's internal 'black box' (Hackett and Dilts, 2008; Jourdan and Kivleniece, 2017). General service development literature points to the importance of the service producer's human capital. Third, we acknowledge that to better understand an incubator's internal functioning, external influencers need to be considered as well (Amezcua et al., 2013, Amezcua et al., 2020), and specify how the external institutional environment in which the incubator operates impacts its development directiveness. Fourth and finally, further elaborating on this contingency view, we examine how internal (that is, the incubator's human capital) and external (that is, the institutional context) elements interact to impact the incubator's directiveness. All in all, our research question is: *How do an incubator's human capital and institutional environment relate to its service co-development directiveness, and how do these elements interact?*

To build up our case that the internal incubation mechanism 'service co-development directiveness' impacts the development of an optimal service mix, we start from the idea that incubators search for ways to adapt their service offering to the incubatees' evolving and specific service needs (Eriksson et al., 2014; Rice, 2002). These are typically dependent upon, e.g., the individual incubatee's company development phase, experience, and/or sector (Chan and Lau, 2005; Vanderstraeten and Matthyssens, 2012; van Weele et al., 2017). Incubation is thus not seen as a '*one-directional flow of* [static] *services from the incubator to the company. Instead, it is seen as a dyadic* [and dynamic] *relationship between the provider of the services (the incubator and its managers) and the consumer of the services (the client company and its entrepreneur* [that is, the incubatee])' (Eriksson et al., 2014, p. 386). By offering a customized incubatee-strengthening service pack, the incubator does not only try to increase incubator service usage, but also – and more importantly – improve incubatee survival and growth rates.

We argue that to offer such customized incubation services, incubator–incubatee interaction during service co-development is key (Eriksson et al., 2014; Rice, 2002; van Weele et al., 2017; Vanderstraeten and Matthyssens, 2012). During an interactive service co-development process, the incubator is the 'producer' of the services, operating in an interdependent relationship with its incubatee – the 'consumer' of the services (Rice, 2002). Incubators seeking out incubatee problems, and consequently co-developing services in collaboration with their incubatees to address these problems, are those argued to be able to attain the highest impact (Rice, 2002; Vanderstraeten et al., 2016). To be able to co-develop services in knowledge-intensive industries such as incubation, an optimal process of information exchange between the service provider (i.e., the incubator) and the service customer (i.e., the incubatee) is pivotal (Lehrer et al., 2012; Ordanini and Pasini, 2008).

In this paper, we argue that to ensure optimal information exchange, an incubation process with directive service co-development instructions towards incubatees is necessary. This way, incubatees are urged to actively engage in the incubation process, ensuring strong service co-development processes and optimal incubatee value creation (Eriksson et al., 2014). More specifically, by being directive, service employees such as incubator managers can direct incubatee behavior towards the expected service co-development participation level (Habel et al., 2017). The level of service co-development directiveness refers to when and where incubatees must participate in the service co-development process, and what types of inputs they have to provide while doing so (Sichtmann et al., 2011). Theoretically, such instructions can be very directive, or – alternatively – the incubator can adopt a 'laissez-faire' attitude, meaning that incubatees are not guided in the information provision process at all.

Interestingly, general service literature shows that human capital is pivotal for information exchange. It has been argued that the service provider's human capital, such as its trustworthy capabilities and expertise, enhance information exchange relationships (Blau, 1964). This has been corroborated in incubation literature, where it has been stressed that the incubator manager's capabilities and expertise are pivotal during incubator–incubatee service development and information exchange (Lai and Lin, 2015). In the current paper, we further examine this, and probe into the relationship between the incubator's human capital and the level of its service co-development directiveness.

Then, because information exchange relationships can either be stimulated or obstructed by external institutional partners (Busenitz et al., 2000), we also include – as explained – external contingencies in our conceptual model. Indeed, as Amezcua et al. (2020) portray, environmental influencers such as urbanization and localization impact organizational sponsorship. We open up these environmental influencers to the regulative, cognitive and normative environment, and argue that the broader institutional environment does not only impact the *effects* of organizational sponsorship (Amezcua et al., 2020), but also the incubator's *internal* functioning. By adding institutional factors to the model, we follow researchers such as Amezcua et al. (2013, Amezcua et al., 2020, Mian et al. (2016), and Phan et al. (2005), who list institutional theory as a useful and under-researched theoretical lens to study the incubator's (internal) incubation process.

Adding external elements to the model feeds into our third and final goal: Following contingency theory, we integrate the above-mentioned internal (i.e., human capital) and external (i.e., institutional) elements, arguing that if two (or more) variables create a fit, this leads to optimally functioning mechanisms. As such, we ground our work in contingency theory which argues for an optimal fit between the organizational template and environmental conditions (Venkatraman, 1989).

Through a quantitative study set out in four European countries (that is, the UK, Ireland, the Netherlands and Belgium), we provide three contributions to theory and practice. First, our study clearly highlights the importance of internal incubator characteristics other than the often-mentioned services offered (e.g., Allen and Rahman, 1985) or organizational incubation processes such as incubatee selection (e.g., Aerts et al., 2007). Instead, we emphasize an element of the incubator's 'black box': The service co-development process, which – as we argue from service literature – can attain its highest impact when service co-development instructions are directive (Habel et al., 2017). To the best of our knowledge, this study is the first examining the antecedents of the incubator's directiveness of service co-development instructions towards incubatees.[1]

Second, our study provides insights into the usefulness and empirical application of Scott's (2008) institutional pillars to the functioning of start-up support organizations such as incubators. By simultaneously examining the regulative, cognitive and normative institutional pillars (Busenitz et al., 2000), we address Bruton et al.'s (2010) call to not rely on one institutional perspective only. What is more, we address pleas in the incubation literature to further develop the understanding of institutional influencers on incubator functioning (e.g., Amezcua et al., 2013, Amezcua et al., 2020).

Third, by setting out the empirical study in four European countries, we address Bruton et al.'s (2010) critique that most institutional studies only examine one country, implying that researchers are often simply

[1] Please note that we focus on the incubator's viewpoint during service co-development and information exchange, and not the incubatees'. We also do not consider possible negative side-effects of co-development instructions for the incubator, such as the effects directive instructions might have on incubation costs. Finally, our paper theorizes about the outcome effects of service co-development directiveness (such as incubatee growth and survival), but does not measure this empirically. Instead, our focus is on internal incubator and external institutional elements influencing the incubator's level of service co-development instructions.

not able to capture sufficient institutional variance. Also, their concern that most researchers only use the theoretical insights from institutional theory but do not empirically test them (Bruton et al., 2010), is addressed with our empirical study in the incubation domain.

In the remainder of the paper, we first discuss the state-of-the-art of incubator functioning, and incubator–incubatee service co-development literature, after which we introduce our hypotheses. Then, we provide the study's empirical methods and results, and discuss them in relation to existing literature. Finally, before providing a final conclusion, we highlight the study's main contributions for practice and policy and suggest some future research avenues.

2. Theoretical background and hypotheses development

2.1. Incubators, incubator functioning and service co-development

To stimulate economic development, governments support entrepreneurial activities (Audretsch and Fritsch, 2002) and employ business incubators to help small start-ups overcome liabilities of newness and smallness (Freeman et al., 1983; Stinchcombe, 1965). New ventures often lack legitimacy, do not have the necessary connections, and/or have fewer resources than their established counterparts. Such externalities lead to market failure (Audretsch et al., 2007). Figures of thirty to forty per cent of start-ups not surviving their first year of existence (OECD, 2002; Shepherd et al., 2000) are no exception. Governments hope to tackle such market failures through the nurturing of small start-ups in business incubators. Consequently, it is not surprising that the number of incubators increased drastically in the last decades (e.g., European Commission, 2002; Knopp, 2007; Wauters, 2013).

The rapid growth of business incubators contrasts sharply with our knowledge about internal incubation mechanisms. Most research focuses on the incubator's facility configuration or its strategic value proposition, implying that studies about service offerings prevail (Baraldi and Havenvid, 2016). For example, Mian (1996) concludes that university-related services are most valuable. Researchers like Bruneel et al. (2012) developed a theory of service usage differentiation strategies and value propositions for incubators. Even though they rightfully argue that service usage leads to incubation differentiation, their research does not – and was not intended to – focus on the internal incubation processes and incubator–incubatee relationships supporting such service differentiation strategies.

This prompted researchers like Hackett and Dilts (2008) and Phan et al. (2005) to plea for additional research on the incubator's internal functioning mechanisms. For example, Hannon and Chaplin (2003, p. 862) argued that '*an enhanced understanding* [of] *the underlying processes of incubation may be far more critical for achieving accelerated firm growth than incubator infrastructure.*' This plea has been responded to by researchers like Ahmad and Ingle (2011) and Eriksson et al. (2014), who studied incubator–incubatee relationships and argued that successful incubation depends upon the quality of the incubator's relation with its incubatees. It is thus fair to say that the first studies focusing on internal incubation mechanisms – rather than on the incubator's facility or strategic position – started to emerge in the literature. The current paper adds to this literature stream.

More specifically, we argue that knowledge-intensive professional service providers such as incubators (Aaboen, 2009) can reach the highest impact when incubator–incubatee interactions during service co-development are stimulated (Eriksson et al., 2014; Rice, 2002; van Weele et al., 2017; Vanderstraeten and Matthyssens, 2012). Indeed, it has been proven that co-development reduces product failures (Cook, 2008; Ogawa and Piller, 2006), and that this pushes organizations to continuous product/service improvements (Xie et al., 2008). It allows product/service features to be closely aligned to customer needs, which might result in higher customer willingness-to-pay and positive word-to-mouth (Franke et al., 2009). In addition, customers which are closely involved in the product/service development process portray more realistic expectations of what is feasible. This, in turn, may result in higher customer appreciation (Hoyer et al., 2010; Joshi and Sharma, 2004).

In this paper, we argue that such service co-development advantages also apply to business incubator service offerings. More specifically, Eriksson et al. (2014) show in an explorative case study that service co-development allows the different incubation parties to get to '*know each other, share their problems, needs and ideas and engage in intensive and continuous business development dialogue*' (p. 393). Moreover, Rice (2002) explains the nature of the gaps that can be addressed thanks to co-development,[2] being both short-term incubatee crises and the stimulation of long-term incubatee development. For example, due to co-development, the incubator is able to intervene and provide mediation during a personnel crisis, and incubatees can receive team-building support to prepare for future company growth, and thus development (Rice, 2002).

These examples show that, due to service co-development, incubators are able to offer the much-needed customized counselling and business support to their incubatees. To guide the co-development process, general service literature stresses that directive service co-development instructions are needed (Bettencourt et al., 2002). Because a customer often does not know where, when or how to participate in the service co-development process (Fliess and Kleinaltenkamp, 2004), clear instructions are a key factor of effective service co-development (Bettencourt et al., 2002), ultimately resulting in improved service quality (Sichtmann et al., 2011). To be able to co-develop and offer services in knowledge-intensive industries such as incubation, an optimal process of information exchange between the service provider (i.e., the incubator) and the service customer (i.e., the incubatee) is pivotal (Lehrer et al., 2012; Ordanini and Pasini, 2008).

Indeed, in incubation literature, the importance of information exchange between the incubator and its incubatees has been stressed (Papagiannidis and Li, 2005), arguing that thanks to information about, e.g., the incubatee's resources or team skills, the incubator can adapt its service offering to incubatee needs (Vanderstraeten and Matthyssens, 2012). Moreover, by providing enough information, the incubatee is a 'good customer' (Aaboen, 2009, p. 668), not only providing knowledge enabling the incubator to offer each individual incubatee the much-needed customized support, but also adding to the knowledge base of the incubator (Aaboen, 2009). The latter results in overall better incubator support, both to current and prospective incubatees (Aaboen, 2009). The importance of a close dyadic incubator–incubatee relationship has been stressed, explaining that '*the success of the incubation process is not only dependent on the service provider* [that is, the incubator], *but the service consumer* [that is, the incubatee] *is just as important a player*' (Eriksson et al., 2014, p. 386).

Important to note is that the entrepreneur's expected resource needs often do not coincide with those observed by the incubator (van Weele et al., 2017). Incubatees often have '*a lack of self-awareness*', are '*primarily short-term oriented*', and are often '*hesitant to step out of their comfort zone*' (pp.24–25). The latter particularly turns out to be the case for technological entrepreneurs having to execute business-related tasks, such as writing a business plan or having to attend sales seminars (van Weele et al., 2017). Incubatees are thus often '*insufficiently aware of their resource gaps*' (Grant, 1991; cited in van Weele et al., 2017, p. 25), implying that incubators should not only offer services related to the needs expressed by the incubatee, but also to those related to the

[2] Rice (2002) refers to 'co-production' instead of 'co-development'. Akhilesh (2017) explains that '*although the three terms – co-development, co-production and co-creation appear to be similar in their semantics, they bear conceptual differences. Co-development is a process, and co-creation can be seen as the end result of this process, whereas co-production forms the action oriented leg of the process*' (p. 53). In other words, the examples provided by Rice (2002) are action oriented, and inherently part of the co-development process we focus on in the current paper.

incubatee resource gaps uncovered by the incubator. Thanks to intensive information exchange and collaboration between the incubator and the incubatee, customized service offering can answer expressed service needs, as well as needs the incubatee is *not* aware of. How incubators can organize optimal information exchange, however, remains largely unclear, despite ongoing calls for research focusing on the incubator's internal 'black box' (Hackett and Dilts, 2008).

2.2. Human capital as an internal influencer

A focus on internal organizational resources goes back to the resource-based view, where it is advocated that an organization can attain a competitive advantage through the acquisition of valuable, rare, inimitable, and non-substitutable [VRIN] resources (Barney, 1991; Wernerfelt, 1984).[3] Due to access to such resources, the organization can differentiate itself from its competitors and offer superior value to its customers. Most of the research on incubators argues that it is in particular the incubator's service bundle that can be considered as embodying VRIN resources. For example, Bruneel et al. (2012) explain that an incubator's superior value proposition can follow from the infrastructure, business support or networking services the incubator offers to its incubatees. Benefiting from such service offerings, incubatees can attain economies of scale, accelerate their learning curve, have access to networks, and experience increased legitimacy (Bruneel et al., 2012), as is also argued by Díez-Vial and Montoro-Sánchez (2016), explaining that, in particular, knowledge flows from universities foster company innovations.

Interestingly, there are only a few studies that break away from this commonly used description of an incubator's value proposition through its service bundle. In such studies, it is argued that it is not just *access* to services that adds customer (that is, incubatee) value. Instead, the incubator's internal human capital determines whether the incubator is able to optimally *employ* its services during the incubation process. For example, previous studies show that incubator managers with entrepreneurship experience (Hannon and Chaplin, 2003) or high education (Zhang and Sonobe, 2011), the quality of the incubator's business management and marketing personnel (Lai and Lin, 2015), and the assertiveness of incubator personnel during support offering (van Weele et al., 2017) define whether the incubator is able to optimally organize its incubation processes and provide the much-needed support. Such studies show that incubators are not just a bundle of services, but that the incubator's human capital plays a key role in their optimal use.

This argument finds its roots in strategic marketing literature, where it has been stressed that people make the difference particularly in service providers, where the employees have direct contact with the service provider's customers. As Judd (1987) states: '*it is not headcount per se which matters, but the power of customer-oriented employees which can make a significant difference*' (p. 243). Indeed, in professional service firms such as incubators, service customers seek '*expertise, experience and efficiency*' in the professional service firm (Aaboen, 2009, p. 660). The service deliverers (that is, the incubator personnel) need to be highly educated and trained, to be able to offer customized services (Aaboen, 2009; Löwendahl et al., 2001).

The importance of attaining a good 'fit' between the incubator's human capital and its service co-development directiveness stems from the numerous challenges that must be handled adequately during service co-development. More specifically, incubators dealing with incubatees with varying needs and ideas can face information overload (Sarker et al., 2012) and subsequent unfounded data neglect. In addition, incubatees might propose ideas that are not feasible (Magnusson et al., 2003), but nevertheless do expect that the incubator follows their suggestions. The involvement of various clients often results in high demand variability (Skaggs and Youndt, 2004) and information flows that are difficult to control (Jones, 1987). To summarize, we can expect that the high uncertainty incubators are faced with during service co-development impacts their service offerings.

Organizations try to accommodate uncertainty by altering aspects of their organizational template. More specifically, they attempt to introduce high human capital (that is, high education and professional training levels) in order to reduce uncertainty typically attributed to intense information exchange (Skaggs and Youndt, 2004). Indeed, as indicated by Carmeli (2004), human capital leads to a (sustained) competitive advantage in environments with high uncertainty and instability. Human capital has proven to be influential during the service production and delivering process (Pennings et al., 1998). It does not only positively relate to high service quality (Becker, 1964), but can also help organizations to respond to anticipated uncertainty (Becker, 1964; Snell and Dean, 1992) induced by interactions with clients (Bateson, 2002).

Incubator employees with high skills, knowledge and expertise can develop information guidelines for employees that allow the incubator to easily filter out the necessary information. Moreover, high human capital allows incubators to 'sell' what they can offer (Aaboen, 2009). Incubator personnel with proven skills, expertise and capabilities are appealing to incubatees (Scillitoe and Chakrabarti, 2010), and make incubatees accept incubation mechanisms otherwise perceived as too directive – such as service co-development instructions. Thanks to high human capital, the incubator can create a safe haven inducing '*collaboration, trust and a willingness-to-interact attitude*' (Eriksson et al., 2014, p. 385). High human capital is thus instrumental for incubators developing directive information instructions for incubatees while avoiding information overload. Therefore, we expect that incubators with high human capital can attain higher levels of service co-development directiveness.

Hypothesis 1. The more developed an incubator's human capital is, the higher is its level of service co-development directiveness.

2.3. The institutional entrepreneurial environment as an external influencer

Entrepreneurship scholars argue that external institutional partners can either stimulate or obstruct activities in the entrepreneurship domain (Busenitz et al., 2000). For example, stimulation can take place when an entrepreneurially-minded environment is developed, e.g., through the creation of transparent regulations for start-ups, or the dispersion of entrepreneurship-related knowledge through education. Although there is a notable increase in studies employing theoretical insights from institutional theory (Schildt et al., 2006), relatively few studies actively test institutional elements in the entrepreneurship domain (Bruton et al., 2010). This is remarkable, because it has extensively and convincingly been argued that institutional elements influence entrepreneurial activities and success (Busenitz et al., 2000; Bruton et al., 2010). Likewise, in the incubator domain, it has been suggested that institutional factors might explain differences in incubator functioning (Amezcua et al., 2013, Amezcua et al., 2020; Baraldi and Havenvid, 2016; Mian et al., 2016; Phan et al., 2005).

Institutional theory draws on two research streams: An economic/political branch that attributes its attention to rules, regulations and enforcement mechanisms, and a sociology/organizational theory branch that posits that cultural frameworks bring about values and norms that determine organizational and individual behavior (Bruton et al., 2010). A three-dimensional profile with a regulatory, cognitive and normative dimension can be used to examine how a country's institutional context affects its business activities (Kostova, 1997). The regulative dimension refers to government policies, laws and regulations. For example, policy can give priority to favoring new venture support, which would allow start-ups to gain access to resources they

[3] Barney (1995) developed the VRIO concept in a later study, replacing 'non-substitutability' by 'organization'. The latter refers to the importance of a firm's internal organization to exploit valuable, rare and inimitable resources.

would otherwise have difficulties with to obtain (e.g., McQuaid, 2002). The cognitive dimension refers to shared knowledge about starting and growing a business, and the normative dimension examines the inhabitants' admiration (or lack thereof) for entrepreneurial activities (Busenitz et al., 2000). Scott's (2008) regulative dimension is formed by formal institutions (Assaad, 1993) and relates to the economic/political branch. The cognitive and normative pillars are often referred to as informal institutions (Assaad, 1993; Hillman and Aven, 2011), and draw on the sociological/organizational research stream. According to Bruton et al. (2010), most entrepreneurship-related studies examined the impact of cultural, informal institutional forces.

The overarching argument regarding institutions in the entrepreneurship domain is that an entrepreneurially-minded environment easily 'accepts' entrepreneurial activities and offers a facilitating institutional setting (Bruton et al., 2010). Research shows that both underdeveloped institutional settings (Puffer et al., 2010) and overly bureaucratic environments (Ryglova, 2007) can hamper entrepreneurial activities, and are thus not entrepreneurially-minded. Therefore, policy tries to find a balance between offering enough support and refraining from setting up cumbersome bureaucratic procedures for start-ups. The more 'balanced' support mechanisms are, the more entrepreneurially-minded the environment is. Such policy support mechanisms are typically related to the regulative institutional dimension and examine a country's level of resource munificence provided by formal institutions. Countries with an entrepreneurially-minded regulative institutional context put consistent and transparent support for new and growing firms high on the agenda (De Clerq et al., 2010).

Similarly, informal institutions can contribute to facilitating entrepreneurial activity. In countries with highly developed cognitive and normative entrepreneurial contexts, entrepreneurial activities are deeply rooted in society (Xavier et al., 2012). Organizations active in the entrepreneurship domain can relatively easily gain legitimacy (Bruton et al., 2010). For example, social environments open to entrepreneurship, such as those where broad and diverse networks are easily developed, positively influence the level of entrepreneurial activities (Estay, 2004).

The institutional entrepreneurial environment is expected to impact service co-development directiveness as follows. In underdeveloped institutional settings, uncertainty thrives (De Clerq et al., 2010). In such settings, incubators experience difficulties to provide clear and uniform instructions towards their incubatees. For example, instructing them about when and where they have to participate in the service co-development process is challenging because incubatee demand variability is high in non-entrepreneurially-minded environments. Both incubators and incubatees experience difficulties in having a clear view on the regulative framework, implying that an incubator's ability to develop directive and clear-cut instructions decreases. In an entrepreneurially-minded regulative environment, rules and regulations are more transparent and consistent, or – as previously referred to – 'balanced'. This allows incubator personnel to be more directive, because incubatees perceive relatively less constraints to provide the needed input for optimal service co-development than in an inconsistent regulative environment.

Hypothesis 2a. The more entrepreneurially-minded the regulative institutional environment is, the higher is the incubator's service co-development directiveness.

We expect similar mechanisms to operate regarding the cognitive entrepreneurial context. A well-developed cognitive context implies that many people know how to start a business (Busenitz et al., 2000). In such environments, incubators experience fewer difficulties in giving the right instructions, because incubatees quickly grasp which input the incubator needs. Because incubatees are more knowledgeable about entrepreneurship-related topics, they are better able to understand their own resource needs, and thus also understand service co-development instructions.

Hypothesis 2b. The more entrepreneurially-minded the cognitive institutional environment is, the higher is the incubator's service co-development directiveness.

Finally, we also expect that the normative entrepreneurial context impacts the incubator's service co-development directiveness. That is, high perceived incubator legitimacy, as typically the case in well-developed normative settings, implies an uncertainty decrease for the incubator's functioning. More specifically, it facilitates information sharing (Tartari and Breschi, 2012) and collaborations (Jansson, 2011), and incubatees are more 'open' for incubator involvement. Combining the above-mentioned arguments implies that we also expect positive influences of a normative entrepreneurially-minded environment on the incubator's service co-development directiveness.

Hypothesis 2c. The more entrepreneurially-minded the normative institutional environment is, the higher is the incubator's service co-development directiveness.

2.4. A contingency view on service co-development directiveness

As stated above, the institutional framework comprises both formal (that is, regulative) and informal (that is, cognitive and normative) elements. Informal institutions are deeply rooted in culture. Although there is no univocal definition of 'culture' (Jahoda, 2012), researchers like Cole and Parker (2011) and Matsumoto (2009) agree that culture is inherent to a social group. It is created by prior generations and determines how people will react in specific situations. Thus, it coordinates social behavior (Matsumoto, 2009). Although culture consists of several layers (Hofstede, 1984), and some of these layers are visible and can thus be acted upon, it is predominantly a recurring pattern of unobservable behavior (Brislin, 1990) that only gradually changes across generations (Cole and Parker, 2011). Cultural elements are relatively fixed and difficult to be influenced. Indeed, previous studies found that, for example, human capital elements such as education levels do not moderate the effects of culture (e.g., Chand et al., 2012). We can thus expect that, although informal (that is, normative and cognitive) entrepreneurial dimensions rooted in culture can have *direct* effects on incubator functioning (see Hypotheses 2a-c), these effects will *not* be influenced by internal incubator factors such as human capital.

To the contrary, we expect different mechanisms when examining interactions between the regulative institutional context and an incubator's human capital. More specifically, because these formal institutions are not rooted in culture,[4] people can more easily act upon them and thus influence their impacts on organizational functioning. We argue that, although regulations are externally imposed by policy and can be sources of environmental uncertainty (Engau and Hoffmann, 2011), people having enough knowledge about the regulative framework can influence their effects. More specifically, incubator personnel with high levels of skills, knowledge or experience can further stimulate the positive effects of an entrepreneurially-minded regulative institutional framework because they can further lower the expected uncertainty attributed to rules, laws and enforcement mechanisms.

[4] We abstract from possible links between formal and informal institutions. We do, however, want to stress that there are likely interactions between the institutional dimensions. For example, van Waarden (2001) argues that formal institutions are an expression of cultural values and gives the example of risk-averse societies that impose formal regulations to reduce uncertainty. By ignoring possible linkages, we follow Scott (2008), arguing that '*rather than pursuing the development of a more integrated conception, I believe more progress will be made at this juncture* [of institutional dimensions] *by distinguishing among the several component elements* [that is, the three institutional pillars] *and identifying their different underlying assumptions, mechanisms, and indicators*' (p. 51).

Indeed, researchers like Lee et al. (2001) indicate that human capital elements such as knowledge and capabilities are powerful organizational characteristics that positively interact with environmental policy aspects.

Hypothesis 3. The positive effect of the regulative institutional entrepreneurial context on the incubator's service co-development directiveness is stronger as the incubator's human capital is higher.

3. Methodology

3.1. Target population

Since quantitative incubator data is not publicly accessible, we sent out our own questionnaire to incubators in Belgium (Flanders), the Netherlands, the United Kingdom and Ireland to gather data at incubator level. To do so, and because European incubator contact details are scattered throughout the World Wide Web, we first developed our own incubator contact database. For all four countries, we started with the publicly available Community Research and Development Information Science (CORDIS) database, which contains contact details of more than 800 European incubators. This contact database, however, was last updated in February 2007, and our data collection took place between October 2011 and August 2012.[5] Therefore, we checked for each contact whether the organization was still active, and whether it concurrently offered office space, administrative support services, business support and networking, satisfying the definition of an incubator (Bergek and Norrman, 2008).[6] Then, we searched for additional contact details on the Internet. We used a large variety of sources, such as references in popular media, reports and government sites.

For each incubator encountered, we listed its website, e-mail address and telephone number. Whenever available, we listed the incubator manager's personal coordinates. We developed a new incubator contact database of 471 incubators: 49 in Belgium (Flanders), 50 in the Netherlands, 317 in the United Kingdom, and 55 in Ireland. Of these 471 incubators, we left 97 incubators out because they were still engaged in a start-up process or were not active anymore: 3 in Belgium, 9 in the Netherlands, 75 in the United Kingdom, and 10 in Ireland. The final contact database consists of 374 up-and-running incubators: 46 in Belgium, 50 in the Netherlands, 242 in the United Kingdom, and 45 in Ireland.

3.2. Data gathering and sample description

To increase the response rate, we applied the following data-gathering strategy. First, in all communication, we stressed that our research was supported by a university (Fox et al., 1988). Second, each incubator manager received a (personalized) e-mail. In this e-mail, we explained the purpose of the study, asked for their participation in an on-line questionnaire, and promised to communicate the results. Respondents could also participate in a lottery to win a little present. Third, the incubator managers received follow-up telephone calls (Chiu and Brennan, 1990; Dillman, 1972). Again, we stressed the importance of the research, explained how the research could add value to their strategy formulation and internal functioning, and promised a report with the results and the possibility to participate in the lottery. When asked for, we sent the questionnaire link again.

In total, we received 140 responses: 29 in Belgium, 18 in the Netherlands, 70 in the United Kingdom, and 23 in Ireland. The overall response rate is 37.4%: A response rate of 63.0% in Belgium, 43.9% in the Netherlands, 28.9% in the United Kingdom, and 51.1% in Ireland. These high response rates can be explained by our personalized e-mails, university sponsorship, and large number of follow-up telephone calls. There were only three incubators that we did not have to contact again through follow-up telephone calls. Our missing data analysis revealed that thirteen cases lacked more than 70 per cent of the variables. These cases missed data on the dependent variable: Service co-development directiveness. Hair et al. (2006) explain that deleting cases with missing data on the dependent variable avoids artificial increase in relationships with independent variables. Deleting these cases results in a final database of 127 observations. The remaining missing data pattern was random ($p = .236 > .05$). Listwise analyses on the final database results in a sample size of 82 cases: 13 in Belgium, 13 in the Netherlands, 42 in the United Kingdom, and 14 in Ireland.

The average incubator in our sample started its operations in 2000. Since its foundation, it supported 121 to 140 companies. In the last three years, it had an average occupancy rate of 61–70%. Its inside space is 1000–2000 m^2. At the time of the questionnaire, the average incubator pre-incubated, incubated and post-incubated a total of 13, 21 and 12 companies, respectively.[7]

3.3. Questionnaire translation and common-method variance

The questionnaire instrument was first established in English. For translation, we followed the collaborative and iterative translation method (Douglas and Craig, 2007). This method avoids cultural biases by qualitatively pre-testing the questionnaire by incubation experts, assuring content validity. The researcher checks for category, functional and construct equivalence, and asks participants whether all questions are easy to understand. Category equivalence refers to category definitions, such as the difference between the service categories 'office space' and 'administrative services'. Construct and functional equivalence involve conceptualization and interpretation of behavior, respectively. For example, we checked the definitions of training, education and experience, as well as whether – as indicated by the questionnaire items for human capital – more experience, training or education is interpreted as having higher human capital.

Common-method bias '*can occur if the same individual is asked to*

[5] Our conceptual model consists of slow-moving variables (Holling, 2001): The institutional context, and the incubator's strategic choices (that is, the incubator's attention to high human capital, and its service co-development position). Basically, this means that even though data gathering for our conceptual model took place almost a decade ago, we do not expect large differences in incubator scores on our conceptual model's main variables. More specifically, regarding the institutional context, scholars argue that '*many social processes require years if not decades to unfold*' (Scott, 2010, p. 9), and '*social norms and values change slowly*' (Roland, 2004, p. 116). Even though the system of rewards and punishments can be changed rather rapidly, Roland (2004, p. 116) explains that '*the effectiveness of the legal system and the enforcement of laws depend on their acceptance and legitimacy in society and on the expectations of many actors*', implying that the overarching institutional environment is not expected to change rapidly. In addition, literature about resistance to strategic change and organizational inertia is abundant. For example, Dent and Goldberg (1999) explain that it is the obstacles in an organization's structure that force employees to attribute attention to their own self-interest, and thus resist strategic change. Moreover, Weick and Quinn (1999) argue that strategic change is episodic, less frequent, and slower than continuous change, which is driven by daily contingencies.

[6] In this paper, we thus do not focus on alternative incubation programs such as accelerators, offering intensive but time-restricted incubation support (Pauwels et al., 2016), or bottom-up incubators, being self-generated incubation environments (Bøllingtoft, 2012).

[7] We were unable to check for non-response bias against our own incubator contact database because this database does not contain incubator demographics. In addition, the most recent incubator report containing detailed incubator information for the European incubator population dates from 2002 (European Commission, 2002). Because this report only contains information for Europe as a whole without giving detailed descriptive data per country, we were unable to use this report to check for sample representativeness. We do, however, check for country and incubator type differences in sections 3.5 (European context) and 5 (Discussion), respectively.

assess both the independent and dependent variables in a field study (Podsakoff et al., 2003), which constitutes a major threat to the validity of the empirical findings' (Cheng and Shiu, 2012, p. 338). We limited the likelihood of common-method variance (Podsakoff and Organ, 1986) through a number of procedures. First, because common-method variance can be caused by socially desirable responses (Chang et al., 2010), we assured participants that responses are anonymous and confidential, and that there are no right or wrong answers. We also asked them to fill out the questionnaire as honestly as possible.

Second, Podsakoff et al. (2003) suggest using different scale endpoints, because this reduces the likelihood of anchor effects (Chang et al., 2010). Institutional context items are scaled on a five-point Likert scale, and human capital, service co-development directiveness and focus strategy items on a seven-point Likert scale. Third, the fact that we employed a qualitative pre-test assures that the different items are easily comprehensible. Our collaborative and iterative translation method ensured that there were no ambiguous or vague terms in the survey instrument, neither cultural nor content related.

Fourth, an ex post argument expressed by Chang et al. (2010) is the use of more complex models – for example, by adding interaction effects. Our moderation analysis makes us confident that the model is not part of the rater's cognitive expectations. Fifth and finally, we conducted an ex-post Harman's single factor test to examine whether common-method variance might be a major problem (Podsakoff et al., 2003). We executed an exploratory factor analysis on all items of our model. Because seven factors emerged from the unrotated component matrix and the first factor only accounted for 21% of the covariance between the items, we can assume that there is no common-method variance.

3.4. Questionnaire items and factor analyses

3.4.1. Human capital

To measure human capital, we used a scale developed and applied by Skaggs and Youndt (2004). We employed a seven-point Likert scale from 'strongly disagree' to 'strongly agree'. Based on the results of qualitative pre-tests, we adapted the questions to the incubator context, ensuring content validity. We asked respondents to indicate whether the incubator hires employees with a high level of experience, education and training. In addition, we asked them whether incubator team members spend many hours or a large sum of money on training.

A factor analysis reveals two human capital dimensions: One containing information about the incubator team members' level of experience, education and training at the moment of hiring, which we call 'hiring', and one about the number of hours and sum of money incubator team members spend on training after being hired, which we call 'training' (see Appendix A for separate items). Cronbach alphas are .844 for hiring and .729 for training. Conceptually, the items indeed load onto these factors, confirming face validity. Moreover, the results are in line with previous research, where the Cronbach alpha reached .85 (Skaggs and Youndt, 2004). The average variance extracted (AVE) and composite reliability (CR), both providing information about scale reliability, meet the required thresholds. The CR is .89 for hiring, and .86 for training. The minimum threshold is .60 (Bagozzi and Yi, 1988). With a range from 0 to 1, the minimum threshold for AVE is .50 (Fornell and Larcker, 1981). With an AVE of .73 for hiring and .75 for training, we can safely conclude that the factors exhibit a high degree of reliability.

3.4.2. Service co-development directiveness

For service co-development directiveness, we examined whether the incubator directs its incubatees to participate in the service development process, implying that the services are transformed to ensure an optimal fit with the individual incubatee's development phase, experience, and/or sector (Chan and Lau, 2005; Vanderstraeten and Matthyssens, 2012; van Weele et al., 2017). The incubator's information exchange instructions can be very directive, or – alternatively – the incubator can adopt a 'laissez-faire' attitude, meaning that incubatees are not guided in the information provision process at all. To examine the level of information exchange and participation instructions, we used a scale developed by Sichtmann et al. (2011). We employed a seven-point Likert scale from 'strongly disagree' to 'strongly agree', and adapted the questions to the incubator context, ensuring content validity. Questions focus on the instructions that the incubator gives to its incubatees. We asked the incubators whether they tell their client companies to participate in the service transformation process, when and where they are expected to do so, and which inputs and resources they have to provide (see Appendix A for separate items). Conceptually, the items indeed load onto this factor, confirming face validity. Factor analyses reveal a three-item scale (Cronbach alpha = .910). This is in line with previous research, where Cronbach alpha reached .85 (Sichtmann et al., 2011). Scale reliability measures portray high reliability, with an AVE of .85 and a CR of .94.

3.4.3. Entrepreneurial institutional context

To examine the perceived entrepreneurial institutional context, we follow researchers like Busenitz et al. (2000) who argue that the entrepreneurial environment consists of a regulative, cognitive and normative dimension. We employed questions developed by the Global Entrepreneurship Monitor (GEM) (Reynolds et al., 2005), measured on a five-point Likert scale from 'strongly disagree' to 'strongly agree'. The questions have been applied in a variety of countries and were proven to be internally consistent and reliable (De Clerq et al., 2010). As expected, our factor analysis resulted in three factors: A perceived regulative, cognitive and normative institutional dimension. For example, for the regulative dimension, we asked respondents whether taxes and other government regulations are applied to new and growing firms in a predictable and consistent way. For the cognitive dimension, respondents indicated, for instance, whether many people have experience in starting a new business. The normative dimension was assessed by asking, e.g., whether entrepreneurs are perceived as competent, resourceful individuals, and whether public media often reports stories about successful entrepreneurs (see Appendix A for all items).

In line with prior research (De Clerq et al., 2010), our Cronbach alphas are .682, .890 and .794, for the regulative, cognitive and normative dimension, respectively. Again, scales turn out to be reliable. For the regulative dimension, AVE and CR are .67 and .91, respectively. For the cognitive dimension, they are .51 and .80; and for the normative dimension, we find an AVE of .56 and a CR of .79. Even though the AVEs of the cognitive and the normative dimensions are thus close to the threshold of .50 (Fornell and Larcker, 1981), they are still acceptable.

3.4.4. Control variables

Because our conceptual model comprises information about the incubator's service co-development directiveness and its human capital, and the country's entrepreneurial context, we include control variables at the incubator and the country level. Incubatee data has been included as well, albeit aggregated at the incubator level.

For the incubator level, we follow existing studies that indicate that an incubator's age and size can influence its functioning (Allen and McCluskey, 1990; Hansen et al., 2000). We measure the incubator's occupancy rate because it gives an indication of its resources for strategy implementation and internal functioning (Costa-David et al., 2002). In addition, higher occupancy rates might require higher directiveness levels. Being directive might be a coping mechanism of (almost) fully occupied incubators. Indeed, in entrepreneurship literature, a positive association between directive leadership styles and company size has been reported (Hmieleski and Ensley, 2007). We add focus strategy because research shows that this strategy impacts incubator functioning (Schwartz and Hornych, 2008; Vanderstraeten et al., 2016): Focused incubators might face lower incubatee demand

variability, allowing them to be more directive regarding service co-development directiveness.

The incubator control variables were operationalized as follows. Incubator size is measured through the incubator's inside space, subdivided into eight categories; 1 = 0 m^2; 2 = 1–1000 m^2; 3 = 1001–2000 m^2; 4 = 2001–4000 m^2; 5 = 4001–6000 m^2; 6 = 6001–8000 m^2; 7 = 8001-10,000 m^2; and 8 = > 10,000 m^2. For incubator age, we use the year that the incubator started its operations (Schwartz, 2008). For occupancy rate, there are ten categories; 1 = 0–10%, 2 = 11–20%; 3 = 21–30%; 4 = 31–40%; 5 = 41–50%; 6 = 51–60%; 7 = 61–70%; 8 = 71–80%; 9 = 81–90%; and 10 = 91–100%. For focus strategy, we asked the respondents whether the incubator focuses on a specific type of services, industry niche, or entrepreneur type. We used three items from existing research (Skaggs and Huffman, 2003) and adapted the items to the incubator context, assuring content validity. This three-item focus strategy factor has a Cronbach alpha of .628, and all items conceptually load onto one factor, confirming face validity. Scale reliability has been confirmed with an AVE of .58 and a CR of .80.

To construct incubatee control variables, we add incubatee domain and incubation phase. Incubatee domain refers to whether incubatees focus on innovative products and/or services. We add this control variable because of the proven association between innovativeness and co-development (Xie et al., 2008). Incubation phase measures the incubator's relative attention attributed to companies needing pre-incubation support. Incubatees in the pre-incubation phase are often not aware of their resource needs and are reluctant to participate in the incubation process (van Weele et al., 2017). As a consequence, a relative stronger focus on pre-incubatees in the incubation process might impact the incubator's level of required directiveness. Those with relatively more pre-incubatees might have to be more directive to ensure that the companies participate in the service co-development process. Incubatee domain is measured by a dummy, with 1 for innovative and 0 for non-innovative products and/or services. Incubation phase refers to the incubator's relative number of incubatees in the pre-incubation phase and is calculated by the following formula:

$$Incubation\ phase\ = \frac{n°of\ pre-incubatees}{(n°of\ pre-incubatees\ +\ n°of\ incubatees\ +\ n°of\ post-incubatees)}$$

For control variables at the country level, we employed GDP/Capita (OECD, 2013), the percentage of inhabitants that received a higher education diploma (OECD, 2013), and the TEA index (GEM, 2013). In studies on entrepreneurial activities, GDP/Capita is widely employed (Peterson, 2008; Valliere and Peterson, 2009). Moreover, education is expected to influence access to resources and capabilities, and hence entrepreneurial activities and strategies (Chandler and Jansen, 1992; Verheul et al., 2002). The TEA refers to the Total Early-stage Entrepreneurial Activity index, which gives an indication of the level of entrepreneurial activity in a country. It measures '*the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business*.' Nascent entrepreneurs are '*actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months*.' An owner-manager of a new business owns and manages '*a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than* 42 months' (GEM, 2013).

3.5. European context

Belgium, the Netherlands, the United Kingdom and Ireland are four West-European countries, covering an area of approximately 30,530 km^2, 41,540 km^2, 243,610 km^2 and 70,270 km^2, respectively. In the early 2010s, Belgium had approximately 11,000,000, the Netherlands 16,500,000, the United Kingdom 62,000,000 and Ireland 4,500,000 inhabitants. According to GEM, all four countries are located in the so-called innovation-driven economies cluster (Xavier et al., 2012). GEM adopted the three phases of economic development suggested by The World Economic Forum's Global Competitiveness Report: Factor-driven, efficiency-driven, and innovation-driven economies. The first mainly involves agriculture and extraction businesses. Natural resources and (unskilled) labor dominate. In efficiency-driven economies, industrialization, economies of scale and capital-intensive organizations are the main drivers. In the innovation-driven phase, economies are knowledge-intensive and the service sector is most dominant. The fact that all four countries in our sample are located in the same cluster creates homogeneity regarding important environmental influencers such as the country's dominant industry/sector, suggesting that localization differences might be relatively small (Amezcua et al., 2020).

Moreover, Xavier et al. (2012) employ this subdivision to locate differences in entrepreneurial activities and environmental conditions. Interestingly, questions referring to the normative dimension score relatively low in innovation-driven economies. For example, although half of the respondents in innovation-driven countries consider becoming an entrepreneur as a good career choice, GEM reports an approximate 75 per cent of respondents with this opinion in factor and efficiency-driven economies (Xavier et al., 2012). Likewise, also questions referring to the cognitive dimension score relatively low in innovation-driven countries: For example, about 35 per cent believe they are capable to start a business, whereas approximately 55–70 per cent of respondents in factor and efficiency-driven economies have this opinion.[8] Finally, Xavier et al. (2012) report expert opinions on, e.g., regulations for small business. Here, we can see that, compared to all 54 countries where GEM executes its research, experts in Ireland, the Netherlands and the United Kingdom do not indicate that regulations for small businesses are extremely difficult. Only Belgian experts rated such regulations as very negative.

Table 1 visualizes the variance for the variables in our conceptual model. On average, the regulative dimension scores nearly 'neutral' in our country sample (that is, a mean of 2.933), indicating that incubators perceive regulations indeed not as extremely difficult. The cognitive dimension seems to be slightly underdeveloped, with a mean score of 2.578 for our sample. Only the normative dimension scores slightly higher, with a mean score of 3.772. Important to note is that the normative dimension has a lower standard deviation than the regulative and cognitive dimensions. This indicates that variance across the four countries of our sample is relatively low for the normative dimension.

Please note that, even though detailed country comparisons would be very valuable, low sample sizes of each individual country do not allow us to perform separate country analyses. We did, however, execute independent samples *t*-tests comparing the continental (that is, Belgium and the Netherlands) vis-à-vis the Anglo-Saxon (that is, the UK and Ireland) country groups. These tests reveal that there are no significant country group differences for our conceptual model's dependent variable (that is, service co-development directiveness). Also, the incubator's human capital (both hiring and training) and the regulative dimension of the institutional environment turn out to not significantly differ either.

We do find country group differences for the cognitive and the normative institutional dimensions. According to the incubator managers, the cognitive entrepreneurial institutional environment turns out

[8] The reason for the low scores of innovation-driven economies on normative and cognitive entrepreneurial elements might be that, compared to efficiency-driven countries, intrapreneurship rates are higher. Intrapreneurship rates are measured with the Entrepreneurial Employee Activity (EEA) index, which refers to '*employees that are currently actively involved in and had a leading role in idea development for a new activity or preparation and implementation of a new activity*' (Bosma et al., 2012).

Table 1
Means, standard deviations, maximum and minimum.

	M	SD	Min	Max
1. Service co-development directiveness	3.232	1.607	1.00	7.00
2. Focus strategy	3.842	1.563	1.00	7.00
3. Human capital hiring	5.321	1.250	1.00	7.00
4. Human capital training	3.799	1.420	1.00	7.00
5. Regulative dimension	2.933	.764	1.00	4.75
6. Cognitive dimension	2.578	.844	1.00	4.80
7. Normative dimension	3.772	.639	2.00	5.00
8. Year operations	2000	7.937	1982	2012
9. Size (m^2)	3.76	1.682	2	8
10. Occupancy rate	7.84	2.064	1	10
11. Innovative incubatees	.890	.315	.00	1.00
12. Incubation phase	.220	.247	.00	1.00
13. TEA	6.197	1.041	3.95	7.20

Variables are not mean centered. Service co-development directiveness, focus strategy and human capital (hiring and training) are measured on a 7-point Likert scale ('I strongly disagree' to 'I strongly agree'). Regulative, cognitive and normative dimensions are measured on a 5-point Likert scale ('I strongly disagree' to 'I strongly agree'). For size, there are 8 categories; 1 = 0 m^2; 2 = 1–1000 m^2; 3 = 1001–2000 m^2; 4 = 2001–4000 m^2; 5 = 4001–6000 m^2; 6 = 6001–8000 m^2; 7 = 8001-10,000 m^2; 8 = > 10,000 m^2. For occupancy rate, there are 10 categories; 1 = 0–10%, 2 = 11–20%; 3 = 21–30%; 4 = 31–40%; 5 = 41–50%; 6 = 51–60%; 7 = 61–70%; 8 = 71–80%; 9 = 81–90%; 10 = 91–100%. For innovative incubatees, there are two options: innovative products/services (1) or non-innovative products/services (0). Incubation phase is the incubator's relative number of pre-incubatees, compared to the total number of pre-incubatees, incubatees, and post-incubatees. TEA is the Total Early-stage Entrepreneurial Activity. This is '*the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.*' Nascent entrepreneurs are '*actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months.*' An owner-manager of a new business owns and manages '*a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than* 42 months' (GEM, 2013).

to be significantly more developed in Belgium and the Netherlands than in both Anglo-Saxon countries ($p < .01$). We find the opposite result for the normative dimension ($p < .01$). The cognitive dimension results indicate that, according to incubator managers, people know relatively better how to start and develop a company in Belgium and the Netherlands than in the UK and Ireland ($p < .01$). Indeed, in the most recent report from GEM, entrepreneurial education at the school and post-school stages ranked higher for the Netherlands compared to the United Kingdom (Bosma and Kelley, 2018). The Netherlands scored 6 and 6.87 on the entrepreneurial education at school and post-school stages, respectively, while the United Kingdom received a score of 3.27 and 4.84, respectively (Bosma and Kelley, 2018).[9]

This contrasts sharply with our findings regarding the normative dimension. We find that entrepreneurs receive a higher status level in the UK and Ireland than in Belgium and the Netherlands ($p < .01$). Indeed, in the most recent GEM report, the UK ranks 13th (out of 47) on entrepreneurial status level, with 76.4% of entrepreneurship experts stating that successful entrepreneurs receive a high status, while the Netherlands rank 37th, with 63.1% of entrepreneurship experts indicating this (Bosma and Kelley, 2018). The status level differences might also be visible in figures of the percentage of Europe's GDP invested in venture capital, for which the UK and Ireland rank second and third, respectively, after Sweden (Bosma and Levie, 2009). Although this requires, without doubt, additional research, high status levels might be related to higher investor willingness.

[9] Scores are calculated on a ten-point scale, ranging from 1 (very bad) to 10 (very good). There are no scores available for Belgium and Ireland in this report.

3.6. Regression analysis

We tested our hypotheses employing hierarchical multiple regression, which is appropriate to gain insights into the (relative) importance of and relationship amongst independent variables in their prediction of the dependent variable (Hair et al., 2006). With twenty variables (nine control variables, five direct effects, and six interaction terms), a minimum of 100 and preferably 300 observations are required to maintain power at .80 and obtain generalizability of results (Hair et al., 2006). Our database contains 127 responses, with 82 cases providing valid information (listwise) for our model. Hence, power problems force us to lower the number of variables in our conceptual model. This also turns out to be required because of multicollinearity problems.

Multicollinearity is assessed through bivariate correlations and the variance inflation factor (VIF). Only independent variables with a bivariate correlation of maximum |.70| are included (Tabachnick and Fidell, 2007). All bivariate correlations are low, except for education and GDP/Capita, with a bivariate correlation of −.649. Our analysis of the VIFs reveals that there are potential multicollinearity problems for the control variables GDP/Capita, inhabitants with higher education, and the TEA index. For these variables, VIFs are $> |6|$; for all other variables, VIFs are $\leq |2|$ (Field, 2009). To avoid potential multicollinearity, we decided to leave out GDP/Capita and education. We kept the TEA index because its VIF is the lowest, and since its bivariate correlations with the independent variables and incubator control variables are below .40. Moreover, the TEA index gives a clear indication of entrepreneurial activities in the four countries, whereas GDP/Capita and education are rather indirect influencers of entrepreneurial activities (Chandler and Jansen, 1992; Verheul et al., 2002).

Moreover, leaving out GDP/Capita and education gives fewer variables in the regression model: Eighteen instead of twenty variables (seven control variables, five direct effects and six interaction terms). With 18 variables, the required number of observations is minimally 90 and preferably 270 responses. Because our sample size is 82, we decided to execute separate analyses for hiring and training. Then, we have 14 variables for each complete model (seven control variables, four direct effects, and three interaction terms), allowing us to maintain power at .80 and obtain generalizability of results (Hair et al., 2006). See Table 2 for the correlation matrix of the variables in our model.

We executed univariate and multivariate outlier detection (Stevens, 1984). Univariate outlier detection through standardization of the variables suggests four outliers in the variable 'occupancy rate', with standardized scores higher than the upper limit of 3.29 ($p < .001$) (Tabachnick and Fidell, 2007). The outlier cases have very low occupancy rates (0–10%). Because occupancy rate can influence strategy implementation (Costa-David et al., 2002), we will perform robustness checks without these outlier cases. Multivariate outlier detection is assessed through Cook's distance and interpretation of the residuals (Field, 2009). Cook's values are not greater than one, which indicates that there is no single case that considerably influences the model (Cook and Weisberg, 1982). The standardized residuals rule identifies only two cases for which residuals have absolute values greater than 1.96. This represents 2.25% of the cases. Thus, the model is a good representation of the actual data (Field, 2009). To test for homoscedasticity and linearity, we plotted the standardized predicted values against the standardized residuals. There is no sign of a nonlinear relationship and there is no 'tooter' shape, indicating homoscedasticity. We checked for normality through the histogram and normal P–P plot of the standardized residuals. All errors are normally distributed. Finally, all independent variables are mean centered, to make interpretation of the results easier (Cohen et al., 2003).

4. Empirical results

We tested the hypotheses through a moderation model. Table 3

Table 2
Bivariate correlations.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Service co-development directiveness												
2. Focus strategy	.172											
3. Human capital hiring	.218*	.189^{+}										
4. Human capital training	.329**	.365**	.407**									
5. Regulative dimension	.320**	.023	.056	.086								
6. Cognitive dimension	.171	.112	.011	.173	.294**							
7. Normative dimension	-.104	.106	-.019	.126	.099	-.270*						
8. Year operations	.027	.234*	.194	.091	.050	-.188^{+}	.151					
9. Size (m^2)	-.003	.021	-.090	.008	-.047	.164	-.137	-.401**				
10. Occupancy rate	.146	-.026	-.006	-.017	.071	-.140	-.021	-.426**	.320**			
11. Innovative incubatees	.181	.182	.185^{+}	.185^{+}	-.031	-.037	.079	.086	.206^{+}	.125		
12. Incubation phase	.014	-.024	.145	.110	-.087	.031	-.082	.208^{+}	-.226*	-.347**	-.016	
13. TEA	-.174	.107	.097	.014	.070	-.094	.310**	.302**	.168	.102	.282*	.065

$^{+}$ < .10; * < .05; **p < .01; ***p < .001. Two-tailed significance. Pairwise. Sample size = 82.

Table 3
Hierarchical linear regression with human capital hiring.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8a	Model 8b
	B	B	B	B	B	B	B	B	B
Constant	2.149*** (.530)	2.234*** (.533)	2.348*** (.555)	2.381*** (.569)	2.182*** (.527)	2.353*** (.557)	2.364*** (.572)	2.232*** (.537)	2.173*** (.535)
CONTROL VARIABLES									
Incubator level									
Year operations	.039^{+} (.026)	.028 (.027)	.045^{+} (.029)	.031 (.029)	.030 (.027)	.044 (.030)	.033 (.030)	.034 (.029)	.036 (.029)
Size (m^2)	-.058 (.109)	.050 (.114)	-.004 (.120)	.018 (.125)	.027 (.114)	-.002 (.121)	-.017 (.126)	.026 (.119)	-.010 (.120)
Occupancy rate	.095 (.085)	.171* (.094)	.243* (.102)	.189* (.101)	.169* (.093)	.249** (.103)	.186* (.102)	.193* (.101)	.198* (.101)
Focus strategy	.056 (.103)	.119 (.108)	.082 (.115)	.124 (.116)	.099 (.107)	.062 (.119)	.128 (.117)	.105 (.112)	.069 (.115)
Country level									
TEA index	-.396** (.162)	-.554** (.179)	-.510** (.187)	-.491** (.204)	-.527** (.178)	-.499** (.188)	-.497** (.205)	-.529** (.192)	-.468** (.194)
Incubatee level									
Innovative incubatees	1.211** (.549)	1.010* (.554)	.946^{+} (.578)	.904^{+} (.592)	1.077* (.548)	.928 (.581)	.945^{+} (.599)	1.026* (.558)	1.100* (.559)
Incubation phase	-.002 (.689)	.720 (.711)	.476 (.740)	.466 (.768)	.610 (.705)	.516 (.745)	.402 (.779)	.651 (.725)	.512 (.731)
DIRECT EFFECTS									
Human capital hiring		.179^{+} (.135)	.188^{+} (.141)	.201^{+} (.145)	.113 (.139)	.192* (.142)	.182 (.149)	.171** (.137)	.096 (.143)
Regulative dimension		.696** (.212)			.633** (.213)			.632** (.233)	.557* (.240)
Cognitive dimension			.491* (.214)			.415* (.215)		.180 (.232) (p = .221)	.215 (.242) (p = .190)
Normative dimension				-.097 (.293)			-.066 (.299)	-.087 (.290)	-.175 (.297)
INTERACTION EFFECTS									
Regulative * Human capital hiring					.386* (.229)				.412 $^{+}$ (.266)
Cognitive * Human capital hiring						.089 (.132)			.073 (.156)
Normative * Human capital hiring							.098 (.165)		.019 (.190)
F-statistic	1.884*	3.289**	2.347**	1.837*	3.322***	2.141*	1.674^{+}	2.734**	2.446**
R^2	.124	.291	.227	.187	.319	.232	.191	.301	.338
Adjusted-R^2	.058	.203	.130	.085	.223	.123	.077	.191	.200

$^{+}$ < .10; * < .05; **p < .01; ***p < .001. Dependent variable is service co-development directiveness. One-tailed significance. Standard errors in parentheses. All VIF < or = to 2.073. Listwise. Unstandardized coefficients. Sample size = 82. All variables, except for service co-development directiveness (dependent variable), are mean-centered.

represents the results of Model 1 (control variables), Models 2, 3, 4 and 8a (control variables and direct effects), and Models 5, 6, 7 and 8b (control variables, direct and interaction effects) for hiring. Table 4 represents the results with human capital training in Models 9, 10, 11 and 15a (control variables and direct effects), and Models 12, 13, 14 and 15b (control variables, direct and interaction effects). For robustness checks, we performed regression analyses on Model 8 and Model 15 without the outliers in 'occupancy rate'. Results are the same, indicating robustness.

As expected, all models show that the control variable occupancy rate significantly influences service co-development directiveness (B = .2; p < .05). The higher the incubator's occupancy rate, the higher is the directiveness of service co-development. Also, the TEA index significantly affects service instructions directiveness (B = −.4 to −.5; p < .01 to .05). This means that the more inhabitants are involved in entrepreneurial activities, the less directive instructions the incubator gives. The incubatees' domain (innovative products and/or services) provides significant results: Domain innovativeness is positively related to directiveness (B = .9; p < .1). The incubators' size, focus strategy and incubation phase do not affect their directiveness of instructions. The impact of the year of operations (B = .04; p < .1) is only present in Model 1 and in those with the cognitive institutional dimension (Models 3, 5, 10 and 12). Here, there is a very weak positive relationship between the incubator's age and its instructions' directiveness.

The unconditional direct effects represented by Hypotheses 1

Table 4
Hierarchical linear regression with human capital training.

	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15a	Model 15b
	B	B	B	B	B	B	B	B
Constant	2.290*** (.522)	2.399*** (.545)	2.451*** (.553)	2.308*** (.527)	2.407*** (.550)	2.455*** (.557)	2.294*** (.526)	2.333*** (.539)
CONTROL VARIABLES								
Incubator level								
Year operations	.032 (.027)	.047^{+} (.029)	.034 (.028)	.032 (.027)	.046^{+} (.029)	.033 (.029)	.034 (.028)	.031 (.029)
Size (m^2)	.038 (.112)	-.012 (.118)	-.007 (.122)	.040 (.113)	-.012 (.119)	-.007 (.123)	.008 (.116)	.011 (.118)
Occupancy rate	.179* (.092)	.243** (.100)	.194* (.098)	.178* (.093)	.243** (.100)	.193* (.099)	.186* (.099)	.182* (.101)
Focus strategy	.055 (.112)	.022 (.118)	.050 (.119)	.052 (.113)	.029 (.123)	.052 (.120)	.051 (.114)	.054 (.121)
Country level								
TEA index	-.527** (.176)	-.485** (.184)	-.431* (.199)	-.510** (.182)	-.475** (.191)	-.430* (.201)	-.472** (.190)	-.439* (.202)
Incubatee level								
Innovative incubatees	.950* (.543)	.887^{+} (.567)	.833^{+} (.576)	.916^{+} (.553)	.868^{+} (.578)	.833^{+} (.579)	.961* (.546)	.900^{+} (.568)
Incubation phase	.936 (.698)	.408 (.726)	.310 (.751)	.657 (.704)	.416 (.732)	.310 (.756)	.517 (.714)	.551 (.731)
DIRECT EFFECTS								
Human capital training	.262* (.121)	.269* (.128)	.317* (.130)	.263* (.122)	.266* (.129)	.314** (.131)	.268* (.125)	.265* (.128)
Regulative dimension	.663** (.209)			.634** (.223)			.635** (.228)	.597** (.248)
Cognitive dimension		.365* (.212)			.354^{+} (.220)		.098 (.231)	.081 (.244)
Normative dimension			-.221 (.288)			-.216 (.290)	-.221 (.289)	-.224 (.295)
INTERACTION EFFECTS								
Regulative * Human capital training				.060 (.153)				.096 (.177)
Cognitive * Human capital training					.028 (.131)			.009 (.140)
Normative * Human capital training						-.033 (.148)		-.063 (.170)
F-statistic	3.734***	2.717**	2.378*	3.336***	2.418**	2.117*	3.116**	2.386**
R^2	.318	.254	.229	.320	.254	.230	.329	.333
Adjusted-R^2	.233	.160	.133	.224	.149	.121	.223	.193

$^{+}$ < 0.1; * < 0.05; **p < .01; ***p < .001. Dependent variable is service co-development directiveness. One-tailed significance. Standard errors in parentheses. All VIF < or = to 2.084. Listwise. Unstandardized coefficients. Sample size = 82. All variables, except for service co-development directiveness (dependent variable), are mean-centered.

(human capital) and 2 (institutional context) are shown in Models 2 to 4 with human capital hiring, and Models 9 to 11 with human capital training, and this for each institutional effect separately. In Models 8a (hiring) and 15a (training), the institutional effects are added simultaneously. Model 2 (B = .179; p < .1), Model 3 (B = .188; p < .1), and Model 4 (B = .201; p < .1) reveal that human capital hiring positively relates to service co-development directiveness, albeit only marginally significant and with small effect sizes (Cohen, 1988, 1992). Model 9 (B = .262; p < .05), Model 10 (B = .269; p < .05), and Model 11 (B = .317; p < .01) reveal medium effect sizes and strong significance for human capital training. All in all, we find support for Hypothesis 1.

Model 2 (B = .696; p < .001) and Model 9 (B = .663; p < .001) test Hypothesis 2 for the regulative dimension, Model 3 (B = .419; p < .05) and Model 10 (B = .365; p < .05) for the cognitive dimension. All models provide positive and significant relationships between these entrepreneurial context dimensions and directiveness. Thus, the regulative and cognitive dimensions of Hypothesis 2 are supported. Model 4 (B = −.097; p > .1) and Model 11 (B = −.221; p > .1) show non-significant negative relationships, not supporting Hypothesis 2 for the normative dimension. Interestingly, both Model 8a and Model 15a only provide a positive significant effect for the regulative dimension (B = .632; p < .01, and B = .635; p < .01, respectively).

Model 5 reveals a significant positive human capital hiring interaction effect for the regulative entrepreneurial environment (B = .231; p < .1). For human capital training, we do not find a significant effect in Model 12 (B = .060; p > .1). These results suggest weak support for Hypothesis 3 (see below for further examination of this interaction effect). Model 6 (B = .089; p > .1), Model 7 (B = .098; p > .1), Model 13 (B = .028; p > .1), and Model 14 (B = −.033; p > .1) indicate that there is no significant interaction effect for the cognitive and normative dimensions. Our results are similar when all three institutional dimensions are simultaneously added to the model (see Models 8b and 15b).

To further examine the moderation effects, we used the Johnson-Neyman technique (Hayes, 2012). Through bootstrapping, this technique provides the values within the range of the moderator in which the association between the institutional context dimension and service co-development directiveness is significant. The bootstrapping results showed that there are no statistically significant interaction effects for the analyses of the cognitive and normative dimensions.

Fig. 1a plots the effect of the regulative dimension given human capital hiring. The y-axis represents the moderator values (in this case, human capital hiring), the right x-axis the percentage of observations for these human capital values, and the left x-axis the marginal effect of the regulative dimension given human capital hiring. The marginal effect is visualized by the full line. The dotted lines represent the 90% bootstrap confidence intervals. As indicated by Berry et al. (2012), conditional effects are significant when both confidence interval lines lie below or above zero. Fig. 1a reveals that the marginal effect of the regulative dimension becomes significant when human capital hiring reaches −.426 (or 4.895 without mean centering)[10] and that ME (ICR|HCh = HCh_{max}) > 0.[11] For values of human capital hiring above −.426, the effect is not only positive, but also statistically (i.e., the confidence intervals do not straddle at zero) and substantively (i.e., the marginal effect line is not flat) significant. This is true for 70.2% of the

[10] Human capital hiring is measured on a seven-point Likert scale, from 'I strongly disagree' to 'I strongly agree'. Thus, a moderator value of 4.895 defining the significant Johnson-Neyman region implies that from the incubator attributes attention to high human capital levels at the moment of hiring, there is a positive effect on service co-development directiveness.

[11] HCh = human capital hiring; HCt = human capital training; ICR = regulative dimension; ICC = cognitive dimension; ICN = normative dimension.

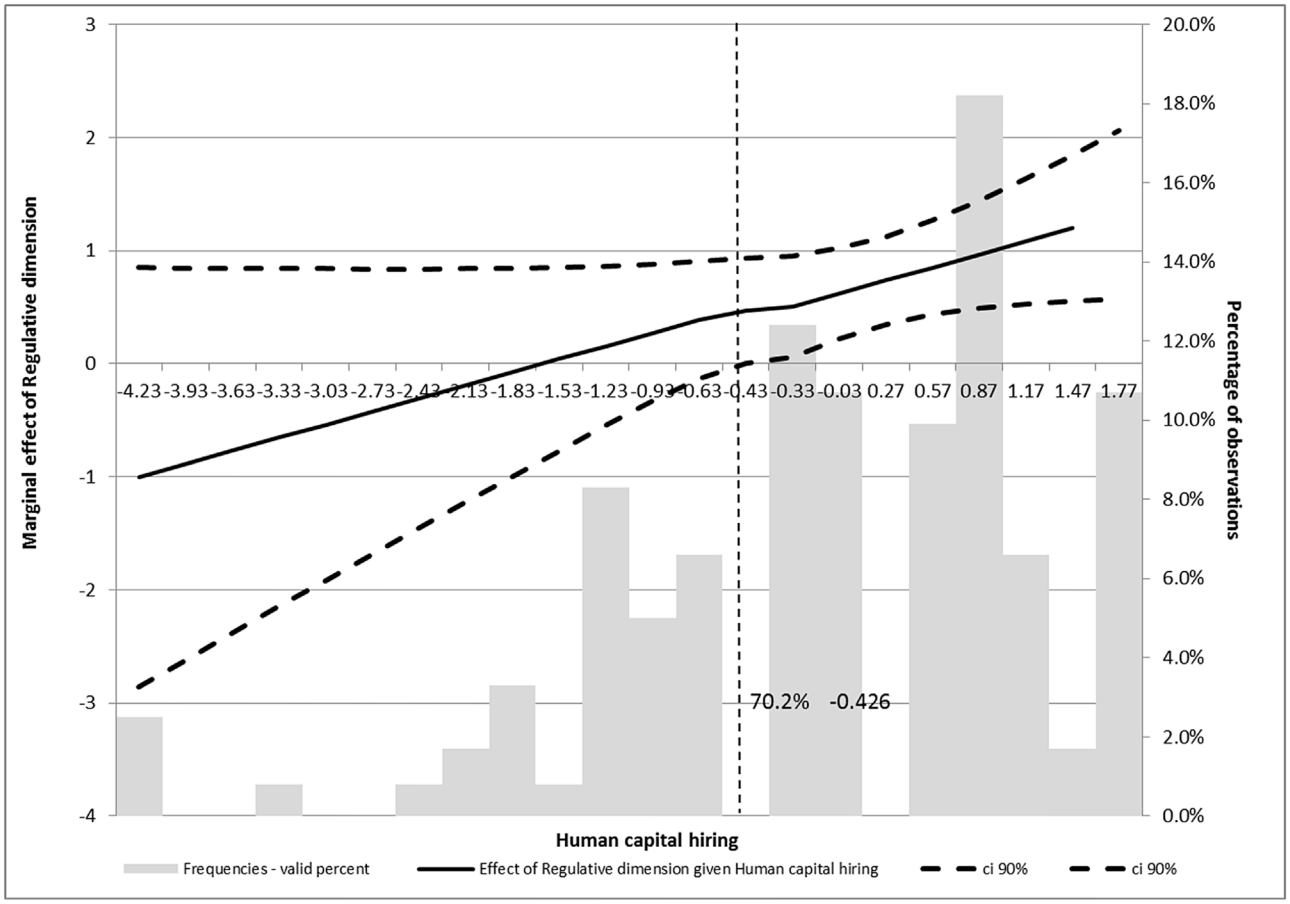

Fig. 1a. Johnson-Neyman region of significance for the conditional effect of regulative dimension given human capital hiring.

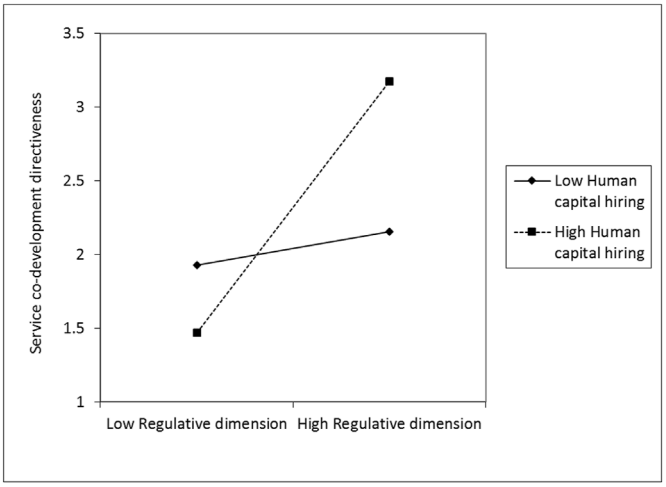

Fig. 1b. Interaction regulative dimension and human capital hiring.

observations. For human capital hiring values lower than −.426, the effect is statistically non-significant. Thus, although the effect switches sign and ME(ICR|HCh = HCh_{min}) < 0, this effect is non-significant. Following Berry et al. (2012), these results nuance our earlier results for Hypothesis 3. More specifically, we find that from the moment that the incubator attributes attention to high levels of human capital hiring, there is a significant interaction effect with the regulative dimension. The interaction plot is visualized in Fig. 1b, with a significant high human capital hiring line and a partly significant low human capital hiring line.

We find similar interaction effects for human capital training. Fig. 2a reveals that the marginal effect of the regulative dimension becomes significant when human capital training reaches −.948 (or 2.851 without mean centering),[12] and that ME (ICR|HCt = HCt_{max}) > 0. For values of human capital training above −.948, the effect is not only positive, but also statistically (i.e., the confidence intervals do not straddle at zero) and substantively (i.e., the marginal effect line is not flat) significant. This is true for 79.0% of the observations. For human capital training values lower than −.948, the effect is statistically non-significant. Again, these results nuance our earlier results for Hypothesis 3. More specifically, we find that from the moment that the incubator attributes only weak attention to high levels of human capital training, there is a significant interaction effect with the regulative dimension. The interaction plot is visualized in Fig. 2b.

5. Discussion

The results of our empirical study show that a sponsorship organization's human capital – in our case, the incubator – as well as entrepreneurially-minded formal and informal institutions positively impact the sponsorship organization's service co-development directiveness. In addition, the study reveals that high human capital hiring and training positively stimulate the positive effects of an entrepreneurially-minded regulative institutional environment. This

[12] Human capital training is measured on a seven-point Likert scale, from 'I strongly disagree' to 'I strongly agree'. Thus, a moderator value of 2.851 defining the significant Johnson-Neyman region implies that even very low training levels generate a positive effect on service co-development directiveness.

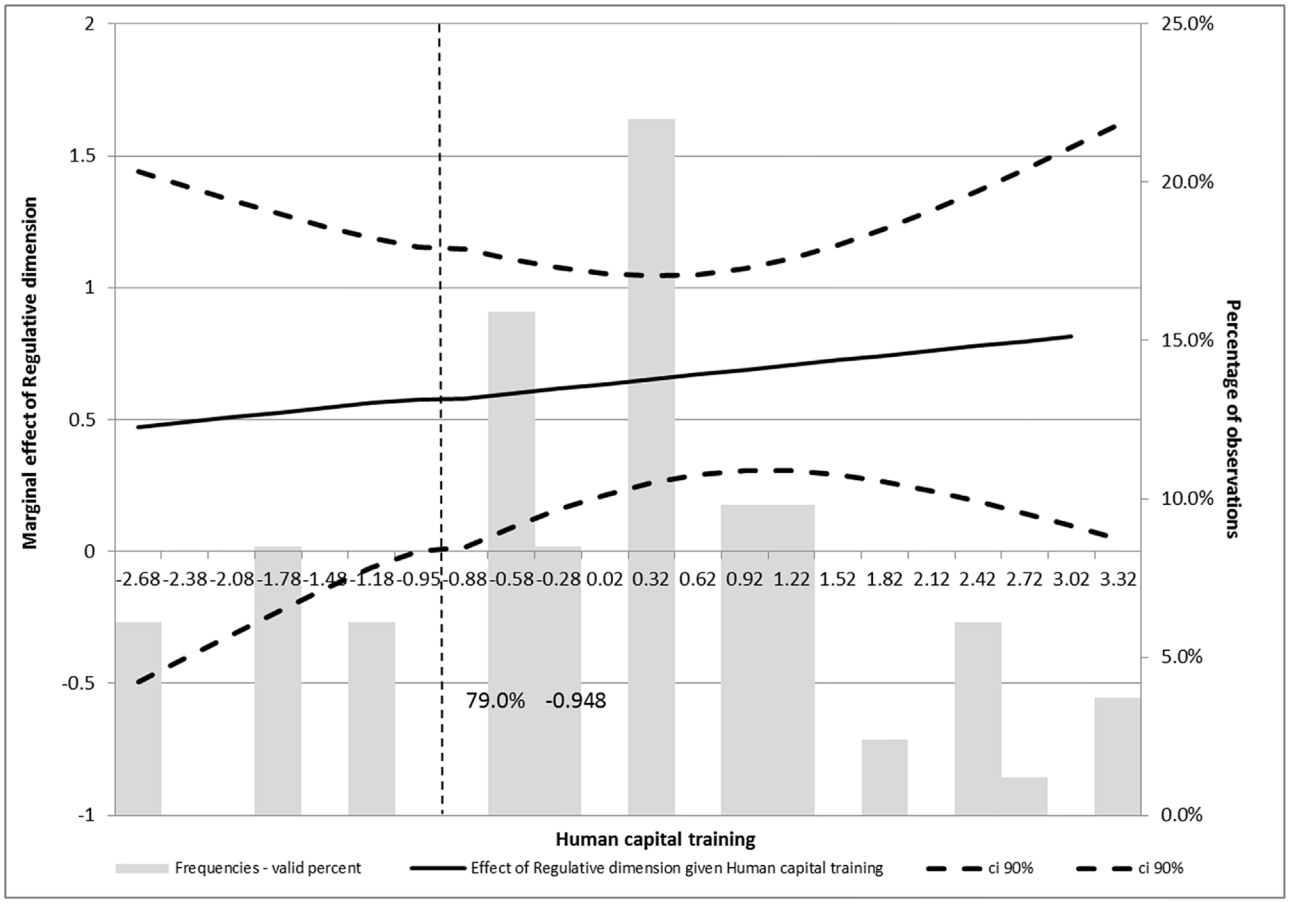

Fig. 2a. Johnson-Neyman region of significance for the conditional effect of regulative dimension given human capital training.

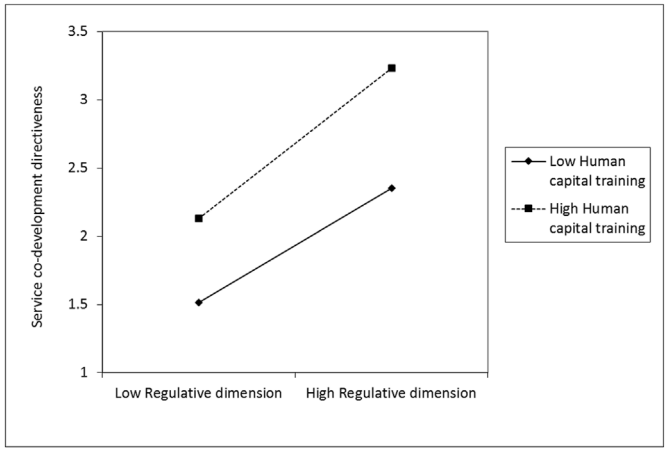

Fig. 2b. Interaction regulative dimension and human capital training.

contingency fit could not be found with culturally-rooted, institutional elements: We did not find support for possible interaction effects between the sponsorship organization's human capital and the cognitive and normative institutional dimensions.

Even though our study was not intended to examine performance effects of a directive sponsorship style, we do offer insights into its internal influencers. As such, we add to the body of knowledge of a sponsorship organization's internal functioning and follow Jourdan and Kivleniece (2017), who argue that there is a clear lack of studies focusing on organizational contingencies in the organizational sponsorship domain. More specifically, our study clearly highlights the importance of internal incubator characteristics other than service offerings (Allen and Rahman, 1985) or organizational processes such as the incubator's selection process (Aerts et al., 2007). We show that incubators attracting employees with high levels of experience, education and training, and willing to spend resources on additional training programs for these employees, are more likely to engage in setting-up directive service co-development instructions for their incubatees. As argued, this allows incubators and incubatees to engage in service co-development, resulting in a customized incubatee-strengthening service pack. As such, incubators can ensure tailored resource access to their incubatees, which results into a competitive benefit for these companies (Dobbin and Dowd, 1997).

The importance of the incubator's human capital and its impact on incubation mechanisms has also been stressed by recent research in the incubator domain. For example, Baraldi and Havenvid (2016) argue that one of the strong resources of the medical university incubator they examined is its expertise. Due to, for example, business development expertise, the incubator could assure optimal knowledge transfer and search for the necessary connections. Moreover, Soetanto and Jack (2016) argue that an incubator's entrepreneurial expertise helps incubatees to overcome organizational difficulties during, for example, ambidextrous strategy implementation. These examples and our own research show that the importance of strategic HRM gets more and more support in the incubator literature, and that an incubator's human capital indeed can be a source of a competitive advantage (Delery and Shaw, 2001) for the sponsorship organization. As such, our results highlight that human capital cannot be neglected to further unravel what goes on within a sponsorship organization's internal 'black box' (Hackett and Dilts, 2008).

On top of this – even though further research is necessary – our results portray subtle differences between attention attributed to high human capital while hiring, and to ongoing human capital development

(that is, training). More specifically, our results show that direct effect sizes of human capital training are larger than those of human capital hiring. In other words, to attain high levels of service co-development directiveness, it seems relatively more important to spend money and time on training incubator team members, than on hiring incubator personnel with high, e.g., education levels. Moreover, we found that attributing attention to training might pay off quickly, because even relatively small investments in training the incubator team (both in terms of time and money), further stimulate the positive effect of an entrepreneurially-minded regulative environment. Important to note, however, is that this stimulation effect is small. The positive moderation effect is also prevalent for human capital hiring, albeit here the level of human capital needs to be higher to have a positive stimulation effect. Once this level has been reached, effects are larger, compared to the stimulation effect of human capital training.

We also provide insights into the usefulness and empirical application of Scott's (2008) institutional pillars to the functioning of sponsorship organizations, such as incubators. As such, we add to recent literature stressing the importance of environmental influencers on the functioning of sponsorship organizations (e.g., Amezcua et al., 2013, Amezcua et al., 2020; Jourdan and Kivleniece, 2017). More specifically, we take a unique stance in this literature stream by focusing on the sponsorship organization's *internal* functioning, and not on the *effects* of sponsorship on sponsored companies (e.g., Amezcua et al., 2013, Amezcua et al., 2020).

Moreover, by adding environmental influencers, we add to studies about the importance of a close relationship between the macro environment and a sponsorship organization's functioning. This idea is also prevalent in studies on the contextualization of incubation practices (e.g., McAdam et al., 2016), where it is argued that a situated regional context consisting of governments, universities, industry and end users defines the incubator's incubation process. Such actors bring in a wide diversity of resources and knowledge, indispensable for optimal incubation (McAdam et al., 2016). Interestingly, with our results, we contradict studies such as Ahmad and Ingle (2011), who argue that '*if these principles* [that is, their findings] *are more carefully understood, they can, irrespective of context, contribute towards the provision of an incubation infrastructure, organizational design and strategy that can positively influence the growth and success of incubating high-technology firms*' (p. 672). In contrast, our results reveal that context can*not* be neglected in the incubation domain (Baraldi and Havenvid, 2016; McAdam et al., 2016), and that both the regulative and the cognitive institutional surrounding impact a sponsorship organization's internal processes.

Besides the more general institutional theory contributions listed in the introduction,[13] there are three study results regarding the institutional dimensions that deserve special attention. Firstly, our findings exemplify Scott's (2008) suggestion that one institutional dimension can dominate the other two. In our case, the regulative dimension has a dominant impact on service co-development directiveness. The standardized coefficient of the direct effect of the regulative dimension is the highest of all three institutional elements (see Model 8a). Indeed, also Baraldi and Havenvid (2016) argue that mainly aspects such as regulation and standardization are important institutional activities that impact incubator functioning. Although their study focuses on the medical field and they argue that, particularly in some sub-fields, regulation and standardization drive institutional activities, our results show that also the general, less fine-grained institutional regulative context for small businesses and start-ups defines incubator functioning.

Secondly, another interesting result regarding these direct effects is that the coefficient of the cognitive dimension becomes non-significant when all three dimensions are simultaneously added to the model. Although further research is needed for an in-depth understanding of the interaction processes between the institutional dimensions, this seems to suggest that the cognitive effect is not only weaker than the regulative one, but that it even disappears when all dimensions are at play. Thus, even though the importance of perceived cognitive knowledge about how to start and grow a business cannot be neglected (Fernández-Pérez et al., 2015), these results show that an internal incubator functioning mechanism such as service co-development directiveness is mainly affected by regulations.

Indeed, Zhuplev et al. (1998) highlight that, even though culturally rooted institutional forces play a role in entrepreneurial behavior, mainly the business infrastructure and environment define entrepreneurial activities. In particular, perceived formal environmental uncertainty determines an organization's degrees of freedom with regard to its internal organizational characteristics (e.g., Van Gils et al., 2004). These arguments are even stronger in the incubator domain, where culturally rooted legitimacy problems typically attributed to start-ups (Stinchcombe, 1965) are less prevalent for established organizations such as start-up support organizations (Bruton et al., 2010). Such organizations might be able to rely on past performance records to get legitimized and gain subsequent access to resources. Our results corroborate this and indicate that regarding internal incubation mechanisms such as service co-development directiveness, uncertainty coming from underdeveloped formal institutions is more important than that associated with culturally rooted, informal elements.

Thirdly, the non-significant normative dimension deserves special attention. Although there might be a purely statistical reason for this because standard deviations of the normative dimension are relatively low (see Table 1), also more theoretical insights can explain this. This might indicate that the regulative and cognitive dimensions grasp the level of resource munificence in the incubator's environment, whereas the normative dimension just measures whether entrepreneurs enjoy high status. An incubator employing high service co-development directiveness provides clear-cut information to its incubatees about the information it needs and expects its incubatees to be able to find the required information. Our results show that, in particular, the dimensions that affect environmental resource munificence (impacting the possibility to find and provide the required information) dominate during service co-development instructions.

Finally, some of the results stemming from the control variables of our model are worth discussing as well. First, the non-significant relationship between an incubator's focus strategy and its service co-development directiveness is in line with and extends recent work in the incubator domain. More specifically, van Weele et al. (2017) examine the incubator's assertiveness level in a sample of six incubators active in technology-based industries, such as clean-tech, software, and life sciences. Although their study did not focus on possible directiveness differences depending on the incubator's sector focus, their results do suggest that there is no relation between an incubator's focus strategy and its directiveness level. Instead, van Weele et al. (2017) show that aspects such as mandatory participation in training programs and fixed milestones define a strong intervention attitude, irrespective of the incubator's sector focus. Our study extends this and shows that incubators with high human capital hiring and training levels reach high levels of service co-development directiveness, which is argued to be necessary for service co-development and the offering of a customized incubatee-strengthening service pack.

Second, our significant results on the impact of the occupancy rate, combined with the non-significant results for incubator size and the marginally significant positive effect of year of operations, shows that it is predominantly the incubator's ability to attract enough incubatees that positively influences its service co-development directiveness. Thus, high occupancy rates rather than a large incubator or a long incubation history are associated with higher directiveness of service co-development instructions. This suggests that fully occupied incubators

[13] That is, examining all three institutional pillars simultaneously and setting out an empirical study comprising four countries to allow for sufficient institutional variance.

use directiveness as a coping mechanism to allow for sufficient incubatee–incubator interaction during service co-development.

Third, the lack of statistical support for a relationship between the incubator's size and the internal incubation mechanism service co-development directiveness indicates that – contrary to what Zablocki (2007) argues (that is, incubator size always impacts incubator functioning) – organizational elements other than size influence the incubation mechanism of service co-development directiveness. In a similar vein, Chandra et al. (2011) explicitly state that it is not just incubator size that defines incubator functioning. They, for example, advocate for investing in an in-depth understanding of incubator affiliations, such as the incubator's relations with other incubators and/or universities, to gain better insight into internal incubation mechanisms.

Fourth, the results related to our incubatee control variables indicate that incubators with innovative incubatees are more directive in service co-development instructions. As stated, this is in line with previous research portraying a positive association between innovativeness and co-development (Xie et al., 2008). The fact that we do not find a significant relationship between incubation phase and directiveness, but do find one between incubatee domain and directiveness, suggests that innovative entrepreneurs need strong guidance during service co-development. Indeed, Eriksson et al. (2014) explain that technological entrepreneurs lack self-awareness. As a result, we argue that they need directive service co-development instructions. We examined this further in a post-hoc analysis, for which we executed independent samples *t*-tests between incubators with innovative and those with non-innovative incubatees.[14] As expected, we find that innovative incubators attribute slightly more attention to service co-development directiveness ($p = .103$). Moreover, they attract incubator personnel with higher human capital levels ($p < .1$) and devote more time to and spend money on training them ($p < .05$). As explained, their attention to people is justified, as stressed by Eriksson et al. (2014) and Aaboen (2009) who argue that people are of utmost importance in incubators.

Fifth and finally, our negative significant results regarding the TEA index deserve our attention, when combined with the positive significant results for the cognitive institutional dimension. More specifically, one would expect to find a positive bivariate correlation between the TEA index and the cognitive dimension. That is, the more inhabitants are involved in entrepreneurial activities, the more entrepreneurship-related knowledge is dispersed. Our results suggest a negative – albeit non-significant – bivariate correlation, and we find contradicting direct effects on service co-development directiveness. This indicates that the number of inhabitants active in the entrepreneurship domain (i.e., the TEA index) does not relate to the dispersion of entrepreneurship-related knowledge. To exemplify this, we refer to Rubin et al. (2015), who show that, in both Australia and Israel, a lack of entrepreneurship-related knowledge (e.g., market, technological and financial knowledge) is prevalent, while the TEA indices of both countries differ considerably (GEM, 2017).

Translating this to our theoretical model and service co-development directiveness, we thus find that there are two *separate* mechanisms in place: (1) The more inhabitants involved in entrepreneurial *activities* (thus, the higher the TEA index), the less directive the incubator is in its instructions; and (2) the more entrepreneurship-related *knowledge* is dispersed (irrespective of whether this also implies a higher propensity of being actually involved in entrepreneurial activities), the easier it is for the incubator to provide clear-cut instructions. Although our theoretical model does not provide sufficient explanation of the negative relation between the TEA index and the incubator's directiveness, our results are in line with our theoretical reasoning regarding the importance of entrepreneurship-related knowledge impacting incubation practices. More specifically, we argued that the wide dispersion of entrepreneurship-related knowledge allows incubators to be more directive (van Weele et al., 2017). This suggests for policymakers willing to support incubators to be more directive during service co-development (e.g., van Weele et al., 2017) to focus on the dispersion of entrepreneurship-related knowledge (for example, through education) rather than on the mere setting up of new businesses. Without doubt, additional research is needed to develop these assumptions further.

[14] Detailed results are available upon request. In our sample, the large majority of incubators were innovative. This implies that we have to nuance the results.

6. Implications for practice and policy

With this paper, we provide insights that feed into practical suggestions for incubator managers and policymakers. We argue that in order to develop a customized service mix for each incubatee (Dutt et al., 2016), incubators should allow for service co-development. We stress that the success of an incubation process is dependent upon *both* the incubator and the incubatee (Eriksson et al., 2014). Instead of being a passive actor receiving incubator services, we urge incubatees to provide sufficient input allowing the incubator to provide the much-needed business support. As such, the incubator can create '*a customized microenvironment in which* […] *new ventures are more likely to survive*' (Amezcua et al., 2020, p.15).

Indeed, incubator managers are often confronted with incubatee dissatisfaction, '*mostly* […] *in the areas of counselling and business assistance services*' (Abduh et al., 2007, p.87). We recommend to incubator managers to develop directive instructions allowing for service co-development to address this. What is more, we suggest that such directive instructions can act as a coping mechanism for incubators with high occupancy rates to allow for sufficient incubatee–incubator interaction during service co-development. Moreover, our empirical study hints to incubators confronted with more innovative incubatees to adopt higher service directiveness. We anticipate that the degree of incubatee directiveness will only increase due to the high technology pressure industry is currently facing (Matthyssens, 2019). In short, our practical advice for incubator managers is that directive service co-development instructions do not only allow the incubator to develop tailored services, but that being directive can also result in – thanks to the tailored support – higher perceived value among incubatees, and a subsequent competitive advantage for the incubator.

Our empirical study shows that human capital is an internal lever for such a competitive advantage: The incubator's human capital directly impacts the level of service directiveness. Here, two recommendations appear for incubators. First, to attain high levels of service co-development directiveness, it is relatively more important to emphasize training of the incubator's existing service team, than hiring new team members with, for example, higher diplomas. The added value of high human capital is also expressed in its stimulating effect of the positive effect of an entrepreneurially-minded regulative context. Here, attributing attention to training turns out to have a quicker stimulation effect than on hiring incubator team members with, e.g., high education levels, albeit these effects are with smaller effect sizes. That is, we recommend incubator managers to attribute sufficient attention, both in time and money, to the incubator team member's continuing knowledge development because training has an enhancing effect on the stimulating effect of an entrepreneurially-minded institutional environment.

Second, but more as a distant study outcome, we expect that attributing sufficient attention to high human capital helps new incubators to attract a sufficient number of start-ups. It has been proven that employees with high education levels act as credentials for an organization without build-up legitimacy (Aaboen, 2009; Bruton et al., 2010). We therefore recommend incubators located in an environment with high competition from other start-up sponsorship organizations to attribute specific attention to their teams' high human capital levels. Ventures value the experience, education and training of the incubator

employees when searching for support. As explained, our study suggests to incubator managers that in particular on-the-job training is most valuable.

Finally, our results recommend to policy authorities seeking to stimulate internal incubation mechanisms, such as service co-development, to attribute more attention to formal institutions than to culturally rooted informal institutions. For one, developing regulations attributing specific attention to creating an inducing environment for start-ups is more important than media attention for entrepreneurs. Specifically, the establishment of a stimulating regulative framework appears to positively influence service co-development directiveness. Our study also advises providing sufficient attention to the dispersion of entrepreneurship-related knowledge through, for example, education. As part of their innovation agendas, branch federations and (local) governments often look at incubators as a key thrust for their innovation policy. As this study proposes, if they realize that without the necessary qualified human capital, life-long learning possibilities, and consequent service directiveness, the supposed incubation support and guidance for incubatees might remain insufficient, thereby undermining the incubation potential.

7. Limitations and directions for future research

Besides the limitations and future research avenues discussed above, there are a couple of other limitations leading to future research possibilities that deserve to be emphasized. A first limitation relates to our abstraction of the impact of service co-development directiveness on incubator performance. Although our paper only pretends to shed light on the contingency question vis-à-vis the relationship between an incubator's organizational template and its environment, we also indicate that – based on previous research (e.g., Bettencourt et al., 2002; van Weele et al., 2017) – high instruction directiveness is desirable for optimal service co-development. Our paper does not empirically measure this, nor does it probe into possible negative consequences from high instruction directiveness, such as increased complexity or incubation costs because of frequent client interactions (Hoyer et al., 2010). Incubator studies that more profoundly examine the *effects* of directiveness are therefore badly needed. Researchers doing so can embed their findings into recent organizational sponsorship studies examining sponsorship effects (e.g., Amezcua et al., 2013, Amezcua et al., 2020; Jourdan and Kivleniece, 2017). Given that some incubatees might self-select incubators with strong intervention incubation processes, we suggest future researchers to take this self-selection bias into account while doing so.

Related to our fist limitation, is the second one. Even though we incorporate some incubatee control variables such as whether incubatees develop innovative products and/or services, and the incubation phase the incubator focuses on (i.e., needing pre-incubation, incubation, or post-incubation), our study takes on an incubator stance, and does not take into account incubatee viewpoints on service co-development directiveness. We do not examine incubatee opinions about service co-development directiveness, nor do we consider possible drivers or barriers for incubatee participation. We urge future researchers to do so, in particular because previous research reveals that, for example, client motivations can considerably impact an organization's degrees of freedom whilst stipulating its internal mechanisms (e.g., Hoyer et al., 2010), with financial benefits such as increased value for their money or social benefits such as getting a higher status in the incubator as possible motivators. When examining client motivations, we urge future researchers to consider Aaboen (2009) and Eriksson et al. (2014). Aaboen (2009) takes on a firm perspective and critically discusses who the incubator clients are – the incubatees or the incubator funding organizations. Eriksson et al. (2014) stress that during service development, as much parties as possible should be involved in the service co-development process, including the incubatees' clients.

A third limitation and future research avenue relates to our contingency approach. Although we focus on the relative importance and interplay of internal and external influences, and we do add 'focus strategy' as a control variable to the model, we disregard an in-depth understanding of the possible impact of strategy formulation on service co-development directiveness. This is a clear limitation of our paper, given that, for example, legitimacy-building strategies have been proven to impact organizational activities (e.g., Skaggs and Huffman, 2003), and that such strategies might also interact with the effects of the institutional context (Ahlstrom et al., 2008). Therefore, we call for a contingency approach where not only internal and external aspects are determinants, but also strategy formulation is added. Previous (mainly qualitative) studies doing so prove that an optimal interplay among internal, external and strategic variables can lead to superior value creation for incubatees (e.g., Vanderstraeten and Matthyssens, 2012). Moreover, adding other external and internal variables to a contingency model can provide additional insights into the relative importance of these variables in sponsorship organizations.

Fourth, we do not profoundly examine the interplay between the three institutional context dimensions, even though prior work suggests that informal elements such as uncertainty avoidance trigger formal aspects such as heavily regulated environments (van Waarden, 2001). In addition, informal institutional elements can fill the voids of underdeveloped formal institutional contexts (Puffer et al., 2010). Although our focus does allow us to unravel the mechanisms of each institutional dimension (Scott, 2008), and our results suggest that, indeed, there is an interplay between, for example, cognitive and normative institutional aspects in their impact on service co-development directiveness, we did not examine this in-depth. Therefore, we call for further research investigating these relationships.

Fifth, the recent upsurge of studies on internal incubation practices and characteristics (e.g., Eriksson et al., 2014; Lai and Lin, 2015; van Weele et al., 2017) and the impact of several environmental layers on incubator functioning (e.g., Baraldi and Havenvid, 2016; McAdam et al., 2016) shows that research about incubators is ready to shift from describing an incubator's service offerings to understanding how and when such service offering mechanisms work. We believe that the kind of contingency perspective examined in the current paper, combining an internal focus with an external perspective, has great potential for future research. Future researchers doing so might incorporate alternative incubation models, such as accelerators (Pauwels et al., 2016) and bottom-up incubators (Bøllingtoft, 2012).

Sixth and finally, people are a clear differentiator of knowledge-intensive and professional service organizations such as incubators (Aaboen, 2009; Lai and Lin, 2015). Besides the incubator personnel's human capital, other internal incubation elements may well be equally important. For example, Aaboen (2009) argues that incubators do not only provide services to incubatees but are '*also indirectly the resource base of the region by increasing the number and success rate of growing NTBFs*' (p. 667). To do so, the incubation process entails mobilizing the resources from other organizations, for which – as Aaboen (2009) rightfully argues – the incubator personnel needs to have resource mobilization capabilities. Another example is Lai and Lin (2015), who find that project service capabilities are more important than resource service capabilities for start-up companies in the post-entrepreneurial phase. Eriksson et al. (2014) argue that only if the incubator is capable to actively engage the incubatees in the service-delivering process, incubatee value creation can occur. These examples are all in line with our findings, suggesting that not just the incubator's service bundle adds value to incubatees. Instead, internal incubation elements, such as the incubator's human capital and its capabilities, allow incubators to optimally stimulate incubatee survival and growth. We urge future researchers to further explore such internal incubation elements.

8. Conclusion

The contingency view argues for an optimal fit between an

organizational template and environmental conditions. In this paper, we examined whether, how and when specific organizational and institutional characteristics impact a sponsorship organization's internal functioning. For this, we focused on business incubators and examined the antecedents of the incubation mechanism service co-development directiveness, which ranges from being extremely directive to a 'laissez-faire' attitude (Bergek and Norrman, 2008). The incubator's organizational templates vis-à-vis its environmental characteristics has only sporadically been examined (Amezcua et al., 2013), and research unraveling these relationships is badly needed (Baraldi and Havenvid, 2016).

We identified the incubator's human capital as an organizational VRIN resource impacting the incubator's internal functioning. We argued that high levels of human capital allow the incubator to be directive regarding their incubatees' participation level and information provision during service development (Bettencourt et al., 2002), resulting in an offering of customized services (Aaboen, 2009; Löwendahl et al., 2001). Our empirical study portrayed that – as theorized upon – incubator personnel with high human capital levels is able to develop directive service co-development instructions. Thanks to high human capital, the incubator can easily filter out the necessary information, and can create a safe haven for information exchange (Eriksson et al., 2014), which further gives room to be directive.

Moreover, we addressed the void of research about the impact of institutional influencers on organizational sponsorship mechanisms (Amezcua et al., 2013, Amezcua et al., 2020; Baraldi and Havenvid, 2016; Mian et al., 2016; Phan et al., 2005), and examined the relationship between institutional elements and service co-development directiveness. For this, we used a three-dimensional institutional lens: The regulative, cognitive and normative institutional environment. This did not only allow us to better understand the impact of institutionalism on incubator functioning (Phan et al., 2005), but also allowed us to dive deeper into a research domain empirically examined scarcely in entrepreneurship-related research: The impact of the macro-environment and institutions on entrepreneurial activities (Bruton et al., 2010). We found that a stimulating regulative and cognitive entrepreneurial environment allow for increased levels of incubator directiveness. What is more, an incubator's human capital can further stimulate the positive association between a stimulating regulative environment and an incubator's directiveness.

All in all, we provide a further contribution to opening the sponsoring organization's 'black box' by examining the link between a selected organizational element (in this study, human capital), an internal sponsorship mechanism referred to as service co-development directiveness, and the institutional environment in which the sponsorship organization operates.

Appendix A. Measurement scales

Variable	Items
Regulative institutional environment	Government policies (e.g., public procurement) consistently favor new firms
	The support for new and growing firms is a high priority for policy
	New firms can get most of the required permits and licenses in about a week
	Taxes and other government regulations are applied to new and growing firms in a predictable and consistent way
Cognitive institutional environment	Many people have experience in starting a new business
	Many people can react quickly to good opportunities for a new business
	Many people have the ability to organize the resources required for a new business
	Many people know how to start and manage a high-growth business
	Many people know how to start and manage a small business
Normative institutional environment	Successful entrepreneurs have a high level of status and respect
	You will often see stories in the public media about successful entrepreneurs
	Most people think of entrepreneurs as competent, resourceful individuals
Service co-development directiveness	We tell our client companies to participate in the service transformation process
	We tell our client companies where and when they have to participate in the service transformation process
	We tell our client companies which inputs and resources they have to provide in the service transformation process
Focus strategy	The incubator focuses on a specific type of services (e.g., business support, networking, etc.)
	The incubator offers services that focus on a specific industry niche (e.g., IT, biotechnology, creative sector, etc.)
	The incubator offers a service that focuses on a specific type of entrepreneurs (e.g., engineers, academics, a specific social class, etc.)
Human Capital: Hiring	The incubator hires team members with a high level of experience
	The incubator hires team members with a high level of education
	The incubator hires team members with a high level of training
Human Capital: Training	Incubator team members spend many hours per year on training (both paid and free training courses, seminars, etc.)
	Incubator team members spend a high amount of money on training

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